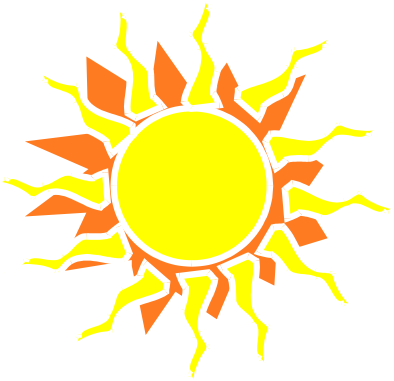
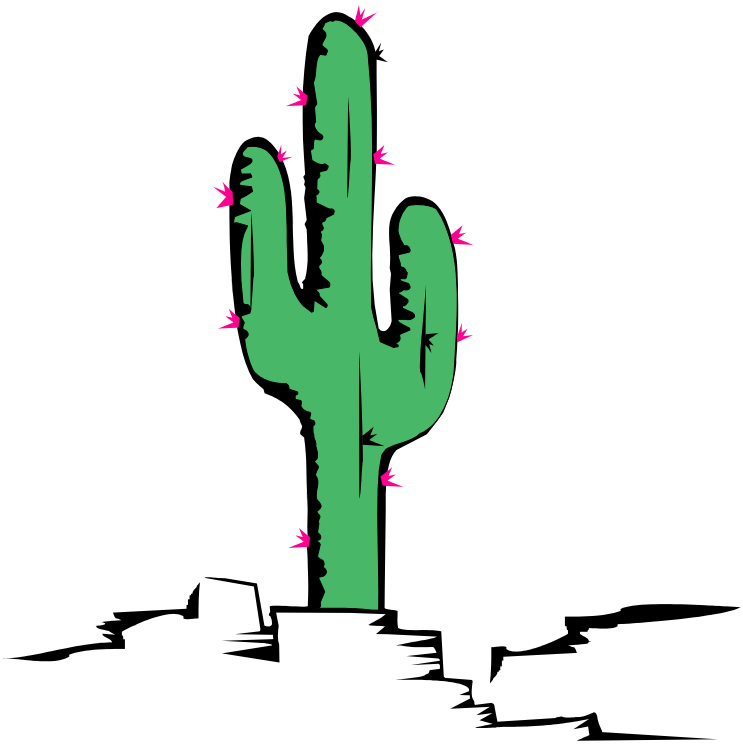


Pollution Prevention Plan Guidance Manual



March 2003

Arizona Department
of Environmental Quality

Arizona Department of Environmental Quality
Facility Assistance Unit
1110 West Washington Street, 4415A-1
Phoenix, Arizona 85007

Pollution Prevention Information: 602-771-4235
Toll-free in Arizona: 1-800-234-5677

http://www.adeq.state.az.us/environ/waste/hazwaste/p2/index.html

Disclaimer

While this manual is written to provide assistance to individuals preparing a Pollution Prevention Plan, it does not replace the Arizona Revised Statutes, Title 49, Chapter 5, Articles 4 and 5. It is important that those who prepare documents read the appropriate regulations before using this guidance.

PRINTED ON RECYCLED PAPER

Minor Revisions Incorporated August 2002 ADEQ Document Number TB-99-2

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Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.adeq.state.az.us

Stephen A. Owens
Director

March, 3, 2003

Dear Plan Filers:

RE: NEW POLLUTION PREVENTION PLAN GUIDANCE EFFECTIVE March 3, 2003

The Department updated this guidance manual for pollution prevention plans to protect the environment while improving profits and safety. Source reduction is the wisest and most cost effective method to reduce environmental regulatory burdens and long-tem liability.

The purpose of the manual is to help clients prepare and submit plans that meet the requirements in the Arizona Revised Statutes 49-961 *et. seq.* in the most simple and direct way. The manual is neither rule nor law. Our goal is to minimize paperwork deficiencies and maximize environmental improvements. We welcome your comments and suggestions.

The Facility Assistance Unit (FAU) staff members are available to help complete a plan or report, identify reduction opportunities, answer questions and provide information. This free assistance is available by calling (602) 771-4235, or toll free in Arizona 1-800-234-5677. Pollution prevention information is also available on the internet at:

http://www.adeq.state.az.us/environ/waste/hazwaste/p2/index.html

Thank you for your support in protecting Arizona's air, land and water.

Sincerely,

Dale Anderson, Manager
Facility Assistance Unit

cc: Shannon Davis, Waste Programs Director

POLLUTION PREVENTION:
A Sensible Approach for Businesses

WHAT IS POLLUTION PREVENTION?

Pollution is waste. All those emissions going out the stacks, discharges going down the drain, and waste to the landfill represent materials wasted. Material you paid for! It's not just the raw materials themselves you're losing. It's also the labor and energy that have gone into processing those materials before they are dumped.

Arizona Pollution Prevention Policy

In the interest of protecting public health and safety and the environment, the legislature declares it is the policy of this state to:

1. Encourage pollution prevention whenever technically and economically practicable without shifting risks.

2. Reduce the amount of hazardous substances used and reduce the amount of hazardous waste generated in this state.

Pollution prevention involves identifying what is causing your pollution problem, and then minimizing or eliminating that cause. Every loss or waste from a process represents an opportunity not to have that loss or waste.

Pollution prevention can take many forms.

EXAMPLES OF POLLUTION PREVENTION

Non-hazardous or less hazardous materials can be substituted for hazardous materials.
Equipment, processes or procedures can be modified to reduce waste.
Left over or off-spec products can be reworked or sold "as-is."

Waste Minimization describes many pollution prevention activities. **Recycling,** while not a federally recognized form of pollution prevention, reduces the waste placed in landfills, into the atmosphere or sent to wastewater treatment facilities.

There are three great myths about business and pollution prevention.

1st GREAT MYTH:

LARGE OR SMALL BUSINESSES CANNOT AFFORD POLLUTION PREVENTION

How do you spell Prevention?
S-A-V-E M-O-N-E-Y. Pollution prevention has solid economic benefits for businesses. Complying with regulations, paying for waste disposal, and paying for wasted resources are costs that are born by all businesses. By reducing costs in any of these areas, we realize savings.

2nd GREAT MYTH:

FINDING WAYS TO REDUCE POLLUTION IS TOO TIME CONSUMING

To start saving money, you need to devise a workable pollution prevention program (P2) that will serve you over the long term.

That requires three key factors that companies often overlook: (1) Integrating P2 into your business decisions; (2) Emphasizing continuous improvement; (3) Ensuring your efforts to reduce pollution do not inadvertently cause other problems, especially safety hazards for workers. Although this sounds like a tall order, it need not overwhelm you. You are not trying to solve all of your pollution problems overnight. You can put a system in place for understanding processes and identifying and targeting areas for improvement. Some pollution prevention opportunities will take only hours to start up. Others may take more effort for research and cost feasibility studies.

Both can be fit into the facility schedule because **the facility manager has control**

over program implementation. Establishing your own goals and schedules allows a manager to implement a Pollution Prevention Program with little or no disruption to regular manufacturing activities.

3rd GREAT MYTH:

GETTING HELP FOR ANY KIND OF ENVIRONMENTAL QUESTION IS PERILOUS

The ADEQ Facility Assistance Unit is available to help you with implementing your Pollution Prevention Plan. We recommend that you make use of these and other resources to gather updated information for your efforts.

AND NOW . . . A GREAT TRUTH ABOUT POLLUTION PREVENTION AND SMALL BUSINESSES . . .

POLLUTION PREVENTION PAYS!!

Implementing a Pollution Prevention Program allows your business to avoid costly waste disposal and compliance costs by decreasing or eliminating wastes. Plant efficiency can be increased through pollution prevention measures. Long term liability is decreased when hazardous or toxic materials are removed from the workplace and replaced with less toxic materials. Finally, your business will maintain a positive image as a good neighbor by reducing the risks to the community from hazardous wastes or materials.

Of course, materials are only one of the things that may be causing your pollution. You also have to look at your equipment, your work methods, and your employees.

HOW TO USE THIS GUIDANCE DOCUMENT

Instructions are provided on developing your pollution prevention plan and maintaining your plan. The appendix provides information on tracking your materials or processes and finding the root cause of a waste or emission. Forms are provided to complete your plan. This information guides you through a process of identifying key areas of concern, developing opportunities, and generating the business plan for implementing a Pollution Prevention Program on a facility wide basis. You set the level of detail to be used, estimate the amount of chemicals used, wastes and emissions and perform a detailed analysis of the process and costs. It is best if you first read the entire guidance manual before you start on your pollution prevention program.

In This Guidance Manual You Will Find:

PART 1

Pollution Prevention Plan Forms

(Remove and complete forms on the following pages
or use forms available from Internet)

PLAN CHECKLIST

Instructions: Please complete the checklist below and submit with the Plan forms.

Completed and submitted Section 1 for the primary facility.

Completed and submitted Section 2 with official signature.

Completed and submitted Section 3 for each facility included in this Plan.

Completed and submitted Section 4 (Pollution Prevention) policy provided in book or developed own policy with the four required items (management support for Plan, commitment to implement Plan and achieve the Plan goals, and encourage employee participation.

Completed and submitted Section 5 identifying the scope and objectives, with a Plan time frame of at least two years.

Completed and submitted Section 6 for all process areas or hazardous waste streams for which Plan filing thresholds are exceeded (e.g. all Form R chemicals.)

Reviewed all process areas and waste streams described in Section 6 for possible pollution prevention opportunities.

Completed and submitted Section 7 (Plan goals) for each feasible opportunity identified in Section 6.

Completed and submitted Section 8 (Management Practices) describing how management will incorporate pollution prevention into activities and ensure it's institutionalization.

Completed and submitted Section 9 (Employee Training) outlining the pollution prevention program to occur at your facility, and either completed a training goal **or submitted a copy of the facility's pollution prevention training program. Note: Pollution prevention training documents must at least include a definition of pollution prevention, a description of the pollution prevention hierarchy and the benefits of pollution prevention.**

Completed and submitted Section 10 (Existing Pollution Prevention Activities) documenting past pollution prevention activities.

Note: Plan filing thresholds are found on Page 47 in the Appendix.

Mail completed Pollution Prevention Plan to:
Arizona Department of Environmental Quality
Facility Assistance Unit, 4415A-1
1110 West Washington Street
Phoenix, Arizona 85007

POLLUTION PREVENTION PLAN

SECTION 1. GENERAL INFORMATION (ARS §49-963.J.1)

Name of Company: _____

Mailing Address: _____

_____

Contact Person: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____ @ _____

One Pollution Prevention Plan may be submitted to cover more than one facility. Complete Section 3 *for each facility* covered by this Plan.

How many facilities will be covered by this Plan? _____

SECTION 2. CERTIFICATION (ARS §49-963.J.2 & 3.)

"I certify that I have personally examined this Pollution Prevention Plan, that I am familiar with its contents and all attachments, and based upon my inquiry of those persons immediately responsible for obtaining the information contained in the Plan, I believe the information presented in the Plan is true, accurate and complete."

_____

Signature (The Plant Manager, President, VP Operations, Owner or General Manager must sign this page. This person must be a senior official with management responsibility and authority to assure that resources are allocated to achieve the Plan goals.)

_____

Name (Please print or type.) ***Date***

_____

Title of person certifying the Plan ***Telephone Number*** ***Fax Number***
(Please print or type.)

FAU Identification number: 200_ _ _.

SECTION 3. FACILITY INFORMATION (ARS §49-963.J.1 & 963.I.)

Make a copy of this sheet and fill out the information for each facility included in the Plan.

Facility Name: _____

Physical Address: _____

_____

Brief Description of Principal Business Activity: _____

_____

_____

Primary SIC Code (4 digits): _____ **Other SIC Codes** (optional): _____

Geographic Location: Latitude: N E ' " Longitude: W E ' "
(For example: N 31E 33' 27.5" *W 112E 34' 28.0 "*)

Permits

Please list below any permits at this facility. Write "NONE" for any permits that do not apply.

RCRA ID Number (also known as EPA ID Number): __ __ __ __ __ __ __ __ __ __ __ __

(For example: AZD123456789)

NPDES Permits: _____

Air Quality Permits: _____

Water Quality Permits: _____

List any other environmental permits: _____

Plan Requirement Threshold(s) Exceeded

Please check all Plan filing threshold(s) exceeded and identify the year exceeded which currently require this facility to file and maintain a Plan. See Page 47 of this guidance manual for more information on Plan filing thresholds.

Hazardous Waste (more than 12,000 kgs) or Acutely Hazardous Waste (12 kgs) Off-Site Shipment threshold (for purposes other than recycling) for the calendar year __ __ __ __

Toxic Release Inventory (Form R or A) threshold for the calendar year __ __ __ __

Toxic Use threshold for the calendar year __ __ __ __ (*Please list TRI chemicals that are released, consumed or spent above the 10,000 pound threshold; do not include chemicals manufactured or processed)*_____

Hazardous Waste (12,000 kgs) or Acutely Hazardous Waste Generation (12 kgs) threshold (include quantities recycled on-site or off-site) ***AND*** meet the TRI chemical use activity threshold for at least one TRI chemical, for the calender year __ __ __ __

Voluntary Plan Filer

SECTION 4. MANAGEMENT AND CORPORATE SUPPORT (ARS §49-963.J.5.)

Check ONE box below.

❒ The senior official has signed and we have posted in our facility a copy of the Pollution Prevention Policy shown on the next page.

OR

❒ We have written and posted our own Pollution Prevention Policy that includes a management commitment to implement the Plan and achieve the Plan goals and to encourage employee participation. We have provided a copy of the policy below.

POLLUTION PREVENTION POLICY

(Use additional sheets as necessary)

The policy must include these two statements:

- Management supports the development and implementation of this Pollution Prevention Plan and is committed to achieving the Plan goals.
- All employees are encouraged to participate in the pollution prevention program.

Pollution Prevention Policy

This certifies that

_____

is committed to protecting the environment. We pledge to reduce our use of toxic substances and to minimize our generation of hazardous wastes whenever feasible.

Prevention of pollution at the source is the preferred alternative. When waste cannot be avoided, we are committed to recycling, treatment and disposal in ways that minimize undesirable effects on air, water and land.

We support the development of the company's Pollution Prevention Plan and are committed to implement the Plan and achieve the Plan goals. We encourage and support employee participation in preventing pollution.

Signature *Date*

SECTION 5. SCOPE AND OBJECTIVES (ARS §49-963.J.6.)

FROM: _____ **TO THE LAST GOAL COMPLETION DATE**: _____
month / day / year month / day / year

The starting date should be near the submittal date of this Plan. The ending date should be the latest goal completion date from Section 7.

SCOPE

(The Scope should contain, at a minimum, a list of all areas to be analyzed in Section 6, and include all toxic substances or hazardous wastes for which the facility currently exceeds thresholds. For example, address all toxic substances that the facility uses in excess of 10,000 pounds, all toxic substances for which a Toxic Release Inventory Form was filed, and all hazardous wastes or acutely hazardous wastes generated or shipped offsite in excess of the 12,000 kilogram or 12 kilogram thresholds.)

Staff will look at the following areas for this Plan:

1.
2.
3.
4.
5.

OBJECTIVES

Objectives for this scope were developed and include the following *(Check all that apply*):

❒ Improved housekeeping, spill and leak prevention and operating practices.

❒ Improved management practices, such as purchase and inventory control.

❒ Process or equipment modifications to minimize the use of toxic substances and/or the generation of hazardous waste.

❒ Raw material modifications or substitutions to minimize the use of toxic substances.

❒ Resource (water, energy) conservation.

❒ Reuse or recycling of materials or wastes.

❒ Other _____

❒ Other _____

❒ Other _____

Please note: Some people prefer to analyze processes (Section 6) and then create goals (Section 7). Others prefer to start by creating a goal (Section 7) and then generating the analysis (Section 6). Either way will work.

SECTION 6. PROCESS REVIEW AND OPPORTUNITY DEVELOPMENT (ARS §49-963.J.7.)
(Copy this section as necessary for each additional process area or waste stream analyzed)

Answer the following questions on a separate page. Answer those that apply to your process. Only current processes should be discussed in Section 6. Past pollution prevention projects, activities or accomplishments should be discussed in Section 10. **Note: Even if you feel your facility has no feasible opportunities for reducing hazardous waste generation or toxic usage, you must include a completed Section 6.**

Process Review

1. Process Area (#__): _____

2. In your process review description answer as many of the following questions as possible:

What are the process steps?

What toxic chemicals are used in the process?

What equipment is used in the process and what is it used for?

What wastes and emissions are generated by the process? Include wastes and emissions due to cleaning, maintenance and unused or expired raw materials.

What is the root cause of each waste generation, emission or toxic substance use? (See Page 50 of the guidance manual for more information)

How are wastes handled at the facility? Are the wastes segregated?

What happens to each waste and emission? Is it disposed, recycled, treated, incinerated, released to air, etc?

Do raw material purchases produce a large amount of packaging material that must be handled? i.e. pallets, drums, bags, etc? If so, what happens to this material?

If any of the above information is not included in your process review, please explain why.

Opportunities

3. To focus your pollution prevention efforts, please research and answer the following three questions:

Can the process be eliminated or changed to reduce waste, emission(s) or toxic use?
(See Pages 43-45 of this guidance manual)
Yes No

Can any of the substances be:
Eliminated Reformulated to reduce toxicity None of these
Used less Replaced with a less toxic substitute

Can the method of waste processing be moved up the waste management hierarchy?
(See Page 41 of this guidance manual)
Yes No

4. Describe any pollution prevention opportunities to eliminate, reduce, reuse or recycle each waste, emission or toxic substance. (What method(s) do you plan to use to achieve your goal?)

Opportunity (A):

Will this opportunity be developed into a goal?
❒ YES, fill out a goal form in Section 7, **Goal number**____.
❒ NO, give the reason here.

Opportunity (B):

Will this opportunity be developed into a goal?
❒ YES, fill out a goal form in Section 7, **Goal number**____.
❒ NO, give the reason here.

Opportunity (C):

Will this opportunity be developed into a goal?
❒ YES, fill out a goal form in Section 7, **Goal number**____.
❒ NO, give the reason here.
Attach pages for additional opportunities as necessary.

SECTION 7: **POLLUTION PREVENTION PLAN GOALS** (ARS §49-963.J.4.)

Facility Name: *FAU Id #*:

Complete one form for each goal

1. Goal Statement: Enter a statement of the expected result. The statement should address what can be accomplished by implementing one of the opportunities from Section 6. Goal statements should be in the form (Action Verb) + (Target chemical or waste stream) used for/in (Process). Use action verbs such as "Reduce" or "Eliminate". For example: "Reduce methylene chloride used for degreasing by 80%." If a goal cannot be measured or will take a long period of time to complete then include an action plan that outlines measurable milestones. See Page 9 for an example of an action plan.	2. Scheduled Completion Date (Month/Year)	3. Completion Status: OS=On Schedule DR= Dropped D = Delayed C=Completed	4. Name of Toxic Substance; or Wastestream; Include CAS #; and/or RCRA Waste Code #	5. State Volatile Organic Chemical "VOC", Ozone Depleting Chemical "ODC", "Both" or "N/A"
Goal (#): Process Area(s) (#)				

6. If You Answered "D" or "DR" In Box #3, Provide Explanation(s). Include New Estimated Completion Date(s) For Delayed Goals:_____

7. Reduction Opportunity: Describe how the goal in Box 1 will be attained. Use language from Section 6.	8. Baseline Quantity	9. Baseline Year	10. Measured Reduction Quantity	11. Month & Year Box #10 Was Measured	12. Reduction Quantity is Adjusted for Production?	13. Production Ratio (Optional Unless Box #12 is Marked "Yes")
	_____QTY. (Check one) Pounds Gallons KWH		_____ QTY. (Check one) Pounds Gallons KWH		Yes No	

SECTION 8. MANAGEMENT PRACTICES AND PROCEDURES (ARS §49-963.J.10.)
Required: Describe provisions to incorporate pollution prevention into management practices and procedures in order to ensure its institutionalization. Use additional sheets as necessary.

Management has developed the following provisions to incorporate pollution prevention into established programs, policies and procedures in order to ensure its institutionalization:

(Check all that apply)

❒ The Management Policy (Section 4) is located _____

❒ The Pollution Prevention Plan was distributed to each management employee for inclusion in their Supervisory Handbook or _____

_____

❒ Programs, procedures or policies were revised to incorporate Plan goals.

Management informs employees of procedural changes due to the Pollution Prevention Plan Goals through various methods including:

- ❒ At mandatory monthly operation and safety meetings.
- ❒ Internal memos, directives and information circulars.
- ❒ Amendments to the operation's manual.
- ❒ Impromptu meetings held to discuss any immediate procedural, operational or equipment changes having to do with pollution prevention.
- ❒ Other _____

❒ All production managers will be responsible for assuring Plan activities are incorporated into procedures (where applicable).

❒ Pollution prevention is included in employee and manager performance evaluations.

❒ Employees are recognized or rewarded for suggesting successful pollution prevention opportunities.

❒ Accounting practices allocate the costs of waste management and regulatory compliance to the operations that use toxic chemicals or produce wastes.

❒ Pollution prevention considerations are included in procurement and inventory procedures to minimize the unnecessary purchase and accumulation of toxic substances.

❒ Other_____

_____

_____

_____

_____

SECTION 9. EMPLOYEE AWARENESS AND TRAINING PROGRAMS (ARS §49-963.J.9.)

Required: Describe the employee awareness and training program to involve employees in pollution prevention planning and implementation to the maximum extent possible. The training program for this Plan must cover pollution prevention topics, not merely hazardous waste handling or OSHA requirements.

TRAINING DOCUMENTS *(check one of the following)*

❒ Our facility's pollution prevention training documents are enclosed.

❒ We will fill out the form found on the following page, place it in Section 7, and implement that goal to develop pollution prevention training. When the goal is completed, we will send our pollution prevention training documents to ADEQ-FAU.

TRAINING ASSISTANCE

Please send me a copy of ADEQ-FAU's sample pollution prevention training documents**.**

PURPOSE *(check at least the first box)*

❒ The purpose of the pollution prevention employee training and awareness program is to teach employees about pollution prevention so that they can participate in identifying opportunities and also assist in achieving the Plan goals.

❒ Additional Purpose:_____

OBJECTIVES *(check at least the first box)*

❒ The objectives of this program are to:

- Raise employee awareness of environmental related activities within the facility.
- Train employees in their pollution prevention responsibilities.
- Recognize employees for their pollution prevention efforts.
- Encourage employee participation.

❒ Additional Objectives:_____

SCOPE *(complete all questions)*

How frequently will training be held?
What types of employees will attend?
How will attendance be monitored?

METHODS *(check at least one)*

The training methods will include:

❒ Class room training sessions ❒ Video presentations ❒ Other:
❒ Newsletters ❒ Posters ❒ Other:

TOPICS *(check at least the first box)*

❒ The topics to be discussed include:

- Definitions related to pollution prevention
- Benefits of pollution prevention
- Waste Management Hierarchy - See Page 41 of this guidance manual
- Company Pollution Prevention Plan

❒ Additional Topics:_____

POLLUTION PREVENTION TRAINING GOAL (ARS §49-963.J.9.)

Facility Name: **FAU Id #:**

Complete this form and include in Section 7 if no training documents are being sent to ADEQ-FAU at the current time

1. Goal Statement: Fill in dates and goal number in Box 1. Submit documents with the next Toxic Data Report.	2. Scheduled Completion Date (Month/Year)	3. Completion Status: OS=On Schedule D = Delayed C=Completed	4. Name of Toxic Substance; or Wastestream; Include CAS #; and/or RCRA Waste Code #	5. State Volatile Organic Chemical "VOC", Ozone Depleting Chemical "ODC", "Both" or "N/A"
Goal (#): **Process Area(s) (# N/A)** **Develop a pollution prevention specific employee training program (by __/__/__) and send training documents to ADEQ-FAU (by __/__/__).**			**Training**	**N/A**

6. If You Answered "D" In Box #3, Provide Explanation(s). Include New Estimated Completion Date(s):_____

_____

7. Reduction Opportunity:	8. Baseline Quantity	9. Baseline Year	10. Measured Reduction Quantity	11. Month & Year box #10 was measured	12 Reduction Quantity is adjusted for production	13. Production Ratio (optional unless Box #12 is marked "Yes")
Training Program as discussed in Section 9	**N/A QTY** **(Check one)** **" Pounds** **" Gallons** **" KWH**	**N/A**	**N/A QTY** **(Check one)** **" Pounds** **" Gallons** **" KWH**	**N/A**	**" Yes** **T No**	**N/A**

Attachments: Please attach any further discussion on these items.

SECTION 10. EXISTING POLLUTION PREVENTION ACTIVITIES (ARS §49-963.J.8)

This is an opportunity for your facility to highlight any pollution prevention activities that have taken place prior to submittal of this Pollution Prevention Plan. **Please only include those activities completed prior to the starting date of this Plan prior to the starting date of this Plan.**

Check ONE box below.

❒ We have not documented any previous pollution prevention activities at our company.

OR

❒ We have documented pollution prevention activities at our company and have enclosed information about these projects with this Plan. (Include as much specific information as possible and any available quantitative data without disclosing any confidential business information.)

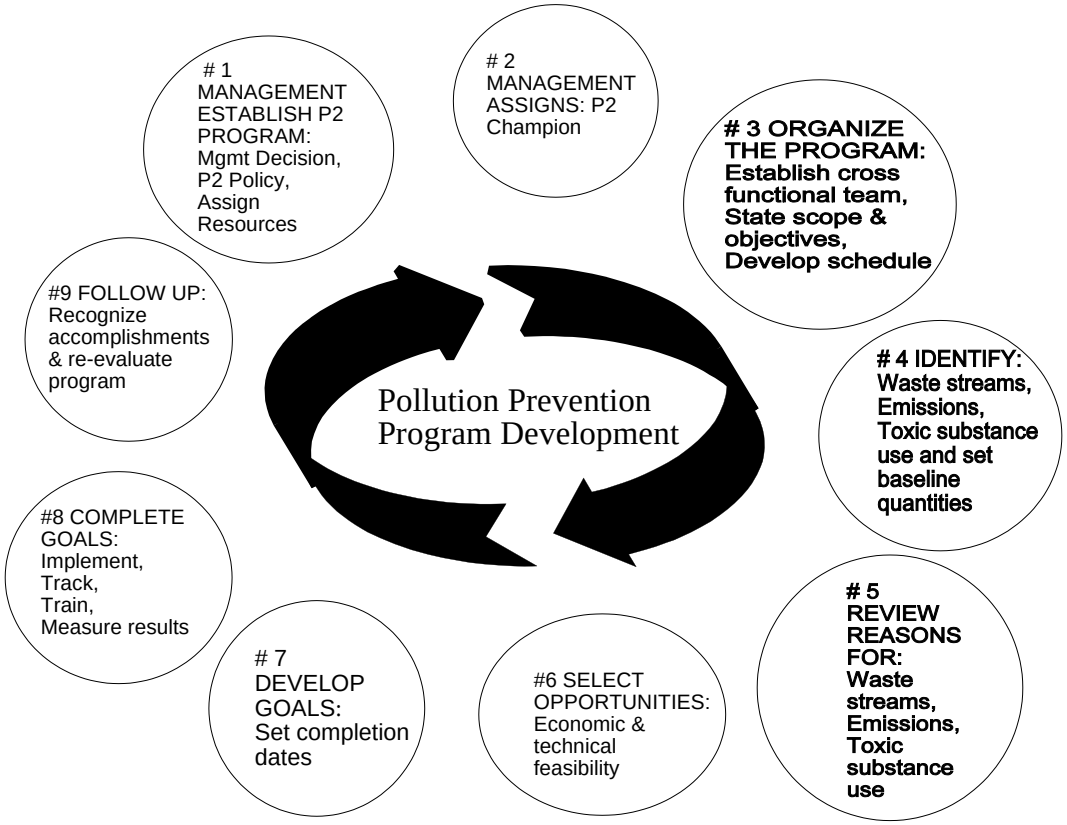
PART 2

Pollution Prevention Plan Instructions

(Including an Example)

DEVELOPING YOUR POLLUTION PREVENTION PLAN

Pollution Prevention Program



<u>FREE Pollution Prevention training is available. Please call (602) 771-4235 to register for one-on-one or classroom trainings.</u>

How Do I Write a Pollution Prevention Plan?

- Read this guidance manual. Remember to review the Appendices which contains valuable information.
- Develop a formal policy on pollution prevention.
- Gather a multi-functional team of employees to develop the Plan. Include employees from areas such as management, purchasing, production, maintenance, and environmental health and safety.
- Set a scope and objectives for this plan to guide you through the rest of the process.
- Complete a review of current waste generation, emissions and toxic substance use.
- Develop a system to collect and track the necessary information.
- Develop pollution prevention opportunities and goals.
- Complete the Pollution Prevention Plan forms and mail to ADEQ-FAU!

What Should a Pollution Prevention Plan Address?

If possible a Plan should at least address all toxic substances and wastes for which the facility exceeds thresholds. Address all toxic substances that the facility uses in excess of 10,000 pounds, all toxic substances for which the facility files a Toxic Release Inventory (TRI) form, and all hazardous or acutely waste generated or shipped in excess of the 12,000 kilograms or 12 kilograms threshold. All of these should be addressed in Section 6.

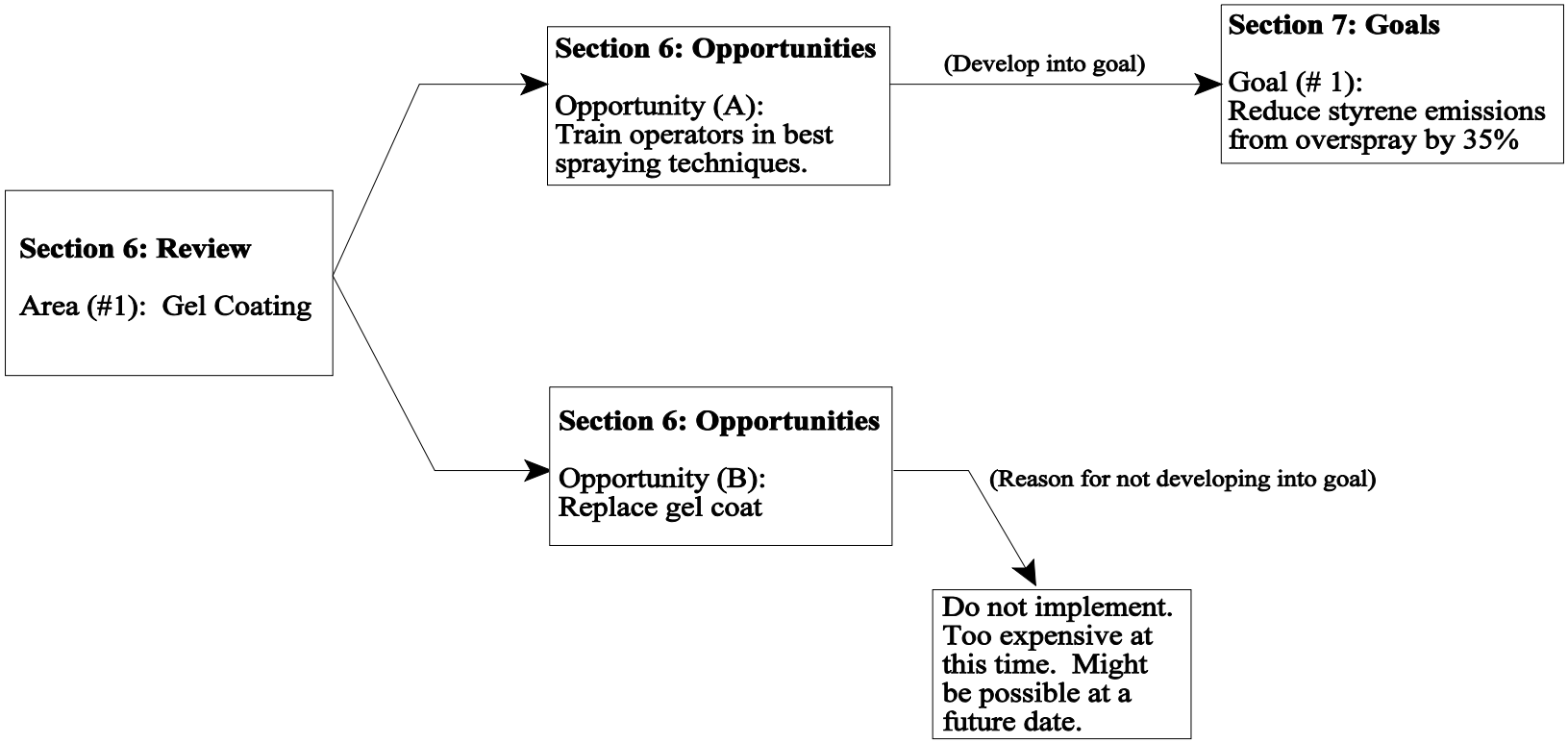
It is not expected that goals will be developed and acted upon for all chemicals or wastes that are addressed because only so many projects can be taken on at once depending on the facility's size, resources, and strength of commitment. However, a process description and opportunities section will need to be completed for each process area even if it simply states that "no opportunities exist" or that "none of the listed opportunities will be implemented during the Plan time frame". These non-implemented opportunities may become goals in future Amendments to the Plan as they become feasible.

How Are Goals Developed?

Pollution prevention goals are developed after a thorough review of the sources of waste, emissions and uses of toxic substances at the facility. A review (Section 6) identifies the current situation and any problems. Possible solutions are brain stormed and listed as opportunities; the best solutions are put into action as goals (Section 7). The relationship between process review, opportunities and goals is diagramed on the next page.

An outline of the flow of ideas from Section 6 (Process Review and Opportunity Development) through Section 7 (Pollution Prevention Plan Goals) - Example

When completing Sections 6 and 7 for a specific process area, some people prefer to start with a goal statement and work backward. In that case the arrows would point the opposite direction.



EXAMPLE
POLLUTION PREVENTION PLAN

SECTION 1. GENERAL INFORMATION (ARS §49-963.J.1)

Name of Company: ABC Incorporated

Mailing Address: P.O. Box 123

Phoenix, Arizona 88888

Contact Person: Polly Prevention

Telephone Number: (602) 555-1111 Fax Number: (602) 555- 1112

E-mail Address: prevention.polly @ abcinc.net

One Pollution Prevention Plan may be submitted to cover more than one facility.
Complete Section 3 *for each facility* covered by this Plan.

How many facilities will be covered by this Plan? 1

SECTION 2. CERTIFICATION (ARS §49-963.J.2.&3)

"I certify that I have personally examined this Pollution Prevention Plan, that I am familiar with its contents and all attachments, and based upon my inquiry of those persons immediately responsible for obtaining the information contained in the Plan, I believe the information presented in the Plan is true, accurate and complete."

Sid S. Senior

Signature (The Plant Manager, President, VP Operations, Owner or General Manager must sign this page. This person must be a senior official with management responsibility and authority to assure that resources are allocated to achieve the Plan goals.)

Sid S. Senior	1/1/1999
Name (Please print or type.)	***Date***

Owner	(602) 555-1122	(602) 555-1112
Title of person certifying the Plan (Please print or type.)	***Telephone Number***	***Fax Number***

FAU Identification number: 200999.

INSTRUCTIONS FOR SECTION 1:

EXAMPLE

GENERAL INFORMATION

Name of Company:

Enter the name of the company operating the facility(ies).

Mailing Address:

Enter the mailing address of the company where the contact person can be reached during normal business hours.

Contact Person:

Enter the contact person's name. This should be the person at the facility who is responsible for the development and implementation of this Plan.

Telephone Number, Fax Number, E-mail Address:

Enter the work phone, fax and e-mail of the contact person.

How many facilities will be covered by this plan?

Enter the number of facilities that are covered by this Plan.

INSTRUCTIONS FOR SECTION 2: CERTIFICATION

Certification Statement:

- Have the senior facility official review the Plan and read the certification statement.

- The official must sign the certification.

- Print or type the official's name, the date the certification was signed, the official's title, telephone number, and fax number in the appropriate locations.

SECTION 3. FACILITY INFORMATION (ARS §49-963.J.1. & 963.I.)

Make a copy of this sheet and fill out the information for each facility included in the Plan.

EXAMPLE

Facility Name: ABC Incorporated

Physical Address: 1234 Main Street

Phoenix, AZ 88888

Brief Description of Principal Business Activity: Manufacturer of cultured marble bathroom fixtures. (i.e. sinks, vanities, tubs)

Primary SIC Code (4 digits): 3281 **Other SIC Codes** (optional): N/A

Geographic Location: Latitude: N 30 E 34 ' 29 " Longitude: W 111 E 33 ' 27 "
(For example: N 31E 33' 27.5" W 112E 34' 28.0 ")

Permits

Please list below any permits at this facility. Write "NONE" for any permits that do not apply.

RCRA ID Number (also known as EPA ID Number): A Z D 1 1 1 2 2 2 2 3 3

(For example: AZD123456789)

NPDES Permits: AZR00A212
Air Quality Permits: A9600202
Water Quality Permits: None
List any other environmental permits: None

Plan Requirement Threshold(s) Exceeded

Please check all Plan filing threshold(s) and identify the year exceeded which currently require this facility to file and maintain a Plan. See Page 47 of this guidance manual for more information on Plan filing thresholds.

Hazardous Waste (more than 12,000 kgs) or Acutely Hazardous Waste (12 kgs) Off Site Shipment threshold for the calendar year __ __ __ __

Toxic Release Inventory (Form R or A) threshold for the calendar year _1_ _9_ _9_ _7_

Toxic Usage threshold for the calendar year _1_ _9_ _9_ _7_ (*Please list TRI chemicals that are released, consumed or spent above 10,000 pounds and not chemicals only manufactured or processed)* Styrene

Hazardous Waste (12,000 kgs) or Acutely Hazardous Waste (12 kgs) Generation threshold (including quantities recycled on-site and offsite) **AND** meet the TRI chemical use activity threshold for at least one TRI chemical, for the calender year __ __ __ __

Voluntary Plan Filer

INSTRUCTIONS FOR SECTION 3: FACILITY INFORMATION

Make a copy of Section 3 of the Plan form and complete it for each individual facility covered.

Facility Name:

Enter the facility name.

Physical Address:

Enter the complete physical street address of the facility.

Brief Description of Principal Business Activity:

Explain in a sentence or two what the facility does. This is often what the facility makes. Be as specific as possible. Do not give the Standard Industrial Classification (SIC) code description.

Primary SIC Code:

Give the facility's four digit primary SIC code number. For assistance, call the ADEQ-FAU or the Department of Economic Security at 602-542-3871 and ask for "ES 202".

Other SIC Codes (optional)**:**

List any additional SIC codes that the facility operates under.

Geographic Location:

Give the facility's latitude and longitude in degrees, minutes, seconds. Information on how to determine latitude and longitude from topographic maps is located in the appendix of the EPA's "Toxic Chemical Release Inventory Reporting Forms and Instructions" manual. Call the ADEQ-FAU for assistance.

Permits:

Give the name and identification number of any federal, state, county or municipal environmental permits applicable to the facility.

Plan Requirement Threshold(s) Exceeded:

There are four Plan filing thresholds and any one, if exceeded, can require a facility to file a Plan. These thresholds are listed on Page 47 of this Guidance Manual. Put a check mark in the box next to each threshold exceeded by this facility. Fill in the year that each threshold was exceeded.

If no threshold has been exceeded and the facility is filing voluntarily, then place a check in the box next to "Voluntary Plan filer."

SECTION 4. MANAGEMENT AND CORPORATE SUPPORT (ARS §49-963.J.5.)

Check ONE box below.

❒ The senior official has signed and we have posted in our facility a copy of the Pollution Prevention Policy shown on the next page.

OR

We have written and posted our own Pollution Prevention Policy that includes a management commitment to implement the Plan and achieve the Plan goals and to encourage employee participation. We have provided a copy of the policy below.

POLLUTION PREVENTION POLICY

(Use additional sheets as necessary)

EXAMPLE

The policy must include these two statements:

- Management supports the development and implementation of this Pollution Prevention Plan and is committed to achieving the Plan goals.
- All employees are encouraged to participate in the pollution prevention program.

ABC Incorporated is committed to excellence and leadership in protecting the environment in Arizona. In keeping with this philosophy, our objective is to reduce waste and emissions wherever possible. We strive to minimize adverse impacts on the air, water and land through pollution prevention and energy conservation. By successfully preventing pollution at the source, we can achieve cost savings, increased operational efficiencies, improve the quality of our products, maintain a safe and healthy workplace for our employees and improve the environment. ABC Incorporated's pollution prevention policy is as follows:

- We are committed to including pollution prevention in the design of new products.
- Preventing pollution by reducing or eliminating the generation of wastes and emissions at the source is a prime consideration in process design and plant operations. We are committed to identifying and implementing pollution prevention opportunities by encouraging and involving all employees.
- Technologies and methods that substitute nonhazardous materials and use other source reduction approaches will be given top priority when addressing environmental issues.
- Management supports the development of the company Pollution Prevention Plan and is committed to implement the Plan and achieve the Plan goals. Management encourages employee participation in this pollution prevention effort.

INSTRUCTIONS FOR SECTION 4: MANAGEMENT AND CORPORATE SUPPORT

Check one of the two boxes shown in this section.

If you check the first box, you must have a senior facility official sign and then post the enclosed Pollution Prevention Policy in your facility.

If you check the second box you must write and post your own Pollution Prevention Policy. A copy of the policy should be provided in the plan. This Policy **must** state the following two things:

1) Management supports the development and implementation of this Pollution Prevention Plan and is committed to achieving the Plan goals.
2) All employees are encouraged to participate in the pollution prevention program.

A strong policy is critical to the success of a pollution prevention program. If upper management does not support the process then money and staff time will not be allocated, therefore, the program will not go forward. Successful pollution prevention also depends on the participation of every employee. There are two facets to this participation. Employees must be willing to adjust to the changes in their workplace brought about by the program and they need to have the ability to submit new prevention ideas to the pollution prevention team. Employees are more apt to do these things if they can see strong support for the program from their upper management.

SECTION 5. SCOPE AND OBJECTIVES (ARS §49-963.J.6.)

The Time frame of this Plan MUST be at least TWO YEARS.

FROM: 1/1/1999 **TO THE LAST GOAL COMPLETION DATE**: 12/31/2000
month / day / year month / day / year

The starting date should be near the submittal date of this Plan. The ending date should be the latest goal completion date from Section 7.

SCOPE

(The Scope should contain, at a minimum, a list of all areas to be analyzed in Section 6, and include all toxic substances or hazardous wastes for which the facility currently exceeds thresholds. For example, address all toxic substances that the facility uses in excess of 10,000 pounds, all toxic substances for which a Toxic Release Inventory Form was filed, and all hazardous wastes or acutely hazardous wastes generated or shipped offsite in excess of the 12,000 kilogram or 12 kilogram thresholds.)

Staff will look at the following areas for this Plan:

1. Reducing styrene emissions
2. Reducing acetone usage and emissions
3.
4.
5.

OBJECTIVES

Objectives for this scope were developed and include the following *(Check all that apply)* :

Improved housekeeping, spill and leak prevention and operating practices.

❒ Improved management practices, such as purchase and inventory control.

Process or equipment modifications to minimize the use of toxic substances and/or the generation of hazardous waste.

Raw material modifications or substitutions to minimize the use of toxic substances.

❒ Resource (water, energy) conservation.

❒ Reuse or recycling of materials or wastes.

Other Protecting employee safety and health

❒ Other _____

❒ Other _____

EXAMPLE

INSTRUCTIONS FOR SECTION 5: SCOPE AND OBJECTIVES

Plan Time Frame:

Enter the date that this Plan begins and the date it expires. This period must be at least two years. The starting date should be near the original submittal date of this Plan. The ending date should be the last goal's completion date.

Scope:

Briefly state what the staff will focus on for the development of this Plan. This scope should be as specific as possible, you will find a scope such as "reduce plating sludge" to be much more useful than a broad scope such as "reduce hazardous waste." For your scope you may want to focus on a particular chemical, waste, emission, or process, whichever is most practical and logical for your facility.

Objectives:

Put a check mark in the box corresponding to any objectives that have been identified for this Plan time frame. These objectives will further guide your process review, opportunity identification and goal development.

Please note: Some people prefer to analyze processes (Section 6) and then create goals (Section 7). Others prefer to start by creating a goal (Section 7) and then generating the analysis (Section 6). Either way will work.

SECTION 6. PROCESS REVIEW AND OPPORTUNITY DEVELOPMENT (ARS §49-963.J.7.)
(Copy this section as needed for additional process areas)

Answer the following questions on a separate page. Answer all those that apply to your process. Only current processes should be discussed in Section 6. Past pollution prevention projects, activities or accomplishments should be discussed in Section 10. **Note: Even if you feel your facility has no opportunities for reducing hazardous waste generation or toxic usage, you must include a completed Section 6.**

Process Review

1. Process Area (# 1): Gel Coating

2. In your process review description answer as many of the following questions as possible:

What are the process steps?

What toxic chemicals are used in the process?

What equipment is used in the process and what is it used for?

What wastes and emissions are generated by the process? Include wastes and emissions due to cleaning, maintenance and unused or expired raw materials.

What is the root cause of each waste generation, emission or toxic substance use? (See page 50 of the guidance manual)

How are wastes handled at the facility? Are the wastes segregated?

What happens to each waste and emission? Is it disposed, recycled, treated, incinerated, released to air, etc?

Do raw material purchases produce a large amount of packaging material that must be handled? i.e. pallets, drums, bags, etc? If so, what happens to this material?

If any of the above information is not included in your process review, please explain why.

EXAMPLE

REVIEW AND OPPORTUNITY DEVELOPMENT

For each process area reviewed, copy the Review of Current Processes Checklist form, complete it, and attach a review of the process area. The form is a list of the questions that should be answered in a complete process review. Check the corresponding box as you answer that question in your review. If any question is not applicable to the process, indicate this by checking the bottom box and explaining why it is not applicable.

The review can be in one of two formats, a narrative that contains the answers to all the applicable questions, or a simple question and answer format where the applicable questions are answered directly. The example only covers one process area but a real plan will most likely have several.

1) Process area

Enter a number and a name for the process area. This is for identification purposes. The numbers should be carried throughout Sections 6 and 7.

2) Process steps

In every process there is a functional sequence of work steps. In a few paragraphs or a diagram describe the work steps for this process. Only describe the current process, as it is/was at the beginning of this Plan time frame. Give as much detail as possible about why steps are performed, when they are performed, and how they are performed. The purpose of this type of description is to allow people unfamiliar with your process to understand what you do, why you do it, and how you do it. <u>You should walk through the entire process area at your facility before completing this question to ensure that all steps are included.</u>

Toxic chemical use

List the name of each toxic chemical used in the process. Include the auxiliary processes such as cleaning and maintenance of equipment.

Equipment use

Describe the equipment used. Include details such as specific type (vapor degreaser as opposed to parts washer), capacity, age, operating conditions (pressure, temperature), etc. Explain the purpose or use of each piece of equipment. (e.g. cleaning oily metal parts)

Process area (<u># 1</u>): Gel coating

Process summary:

Completed molds are sprayed with gel coat to produce a smooth and colorful surface. Gel coat resin has about 49% styrene monomer (weight percent).
The mold forms are moved on rolling tables to a filtered open front spray booth that exhausts air through an outside release stack. Gel coat is applied in the spray booth with a high volume low pressure (HVLP) spray gun. HVLP guns require a high volume of air (10-20 CFM) and are limited to 10 psi, while conventional air spray is frequently operated at pressures of 60 psi. The HVLP spray system creates a soft low velocity spray which accounts for a higher transfer efficiency than conventional systems. A 20 to 30 mil layer of gel coat is applied. Just before being sprayed gel coat is mixed inside the spray gun with 2% methyl ethyl ketone peroxide(MEKP). This MEKP catalyst assists in curing the coating. The catalyst becomes incorporated into the product so there is very little waste. Large catalyzed gel coat particles that miss the mold end up on the shop floor or are captured in the spray booth filter. The filter is changed periodically when a pressure instrument indicates low filter air flow. Used filters are placed in the trash as nonhazardous waste. Operators wear a mechanical filter respirator mask for protection from airborne particles when spraying gel coat. Rags are used for general shop cleanup which is necessary due to gel coat over spray.

After the gel coat is sprayed, the piece is placed into one of the two natural gas heated curing tunnels to dry. The tunnels are heated to 150EF which reduces curing time and helps increase production. The curing tunnels have a series of thick plastic strips on one side so employees can reach in and move the molds in and out of the tunnel. Exhaust from the tunnels is vented to the outside.

Emissions:
Gel coat spraying and curing results in styrene emissions due to the large surface area and volatile nature of styrene. These emissions are removed from the facility and exhausted directly to the outside by air handling equipment. Facility wide styrene emissions total 2,500 pounds per year. Spray gun equipment is cleaned at the end of each day by spraying a few ounces of acetone through the gun. This is done because the guns contain gel coat which will clog the guns if it is allowed to cure. This acetone all evaporates.

Waste:
Used spray booth and respirator filters as well as used rags are placed in the trash which is hauled to the local landfill. Empty gel coat and acetone 55 gallon drums are returned to the supplier for reuse.

EXAMPLE

CONTINUED - INSTRUCTIONS FOR SECTION 6: PROCESS REVIEW AND OPPORTUNITY DEVELOPMENT

Process wastes and emissions

List wastes and emissions that result from this process. You may wish to include solid waste,

electricity and water use. Give the specific chemical name such as “acetone” instead of a generic chemical class name like “solvent” or “F006 Waste.”

Be sure to consider the following sources of wastes, emissions:

Cleaning and maintenance.	These are typically such things as solvents and their emissions, contaminated lubricating oil, etc.
Raw material waste.	Few process are 100% efficient.
Expired and unopened materials.	These can make up a large part of a facility’s waste.

Process mapping is a powerful tool for tracking all material use and waste production in a process. See Page 52 for a description of process mapping. Look back over any notes you have from a facility walk through to be sure that all substances have been addressed.

Root cause

The root cause could also be called the primary cause. The primary cause is the initiating event that causes a waste or emission to be produced or a toxic to be used. A good technique to determine the root cause is to continually ask “Why.” Take waste solvent for example. Why is the solvent waste? Because it is contaminated with grease. Why is it contaminated with grease? Because it was used to clean grease off of parts. Why are the parts greasy? Because the manufacturer puts a coating of grease on them before shipping them to this facility. This last statement is the root cause of the waste solvent. The root cause of the problem is the best place to start finding a solution. Work from the root cause forward until a useful solution is found. Page 50 explains a graphical method to determine the root cause of a problem.

Waste handling

How is each waste handled while at your facility. Is it put in drums, tanks or sent to the facility’s waste water treatment area? Is the waste segregated?

Some possible ways to segregate wastes are hazardous vs. nonhazardous waste, recyclable vs. non-recyclable material , and emission vs. ventilation air.

Final waste management

Give each waste’s final management method, such as disposed, recycled, reused, treated on-site, etc.

Packing waste

Describe what type of excess packing material is present and how it is handled. For example is the material recycled, returned to the vendor for reuse, land filled, etc.

<u>Opportunities</u>

3) To focus your pollution prevention efforts, please research and answer the following questions:

- Can the process be eliminated or changed to reduce waste, emission or toxic use?
  (See Pages 43-45 of this guidance manual)

  Yes No

- Can any of the substances be:

Eliminated Reformulated to reduce toxicity None of these
Used less Replaced with a less toxic substitute

- Can the method of waste processing be moved up the waste management hierarchy?

(See Page 41 of this guidance manual)

Yes No

4) Describe any pollution prevention opportunities to eliminate, reduce, reuse or recycle each waste emission or toxic substance. (What method(s) do you plan to use to achieve your goal?)

Opportunity (A): Train operators in the best available spraying techniques to reduce overspray, thus reducing styrene emissions.

Will this opportunity be developed into a goal?

YES, fill out a goal form in Section 7, **Goal number** 1 .

❒ NO, give the reason here.

Opportunity (B): Replace current gel coat with a low styrene gel coat. This will reduce styrene emissions.

Will this opportunity be developed into a goal?

❒ YES, fill out a goal form in Section 7, **Goal number** ____.

NO, give the reason here.

Opportunity (B) will not be implemented at this time because low styrene gel coat is too expensive. We will continue to search for a more affordable product.

Attach pages for additional opportunities as necessary.

EXAMPLE

CONTINUED - INSTRUCTIONS FOR SECTION 6: PROCESS REVIEW AND OPPORTUNITY DEVELOPMENT

Opportunities

After researching possible opportunities, answer question 10. Then, under number 11 list all of the opportunities that you might want to implement. At the bottom of the page list any of the

opportunities that are not feasible at this time and explain why.

3) To focus your pollution prevention efforts, please research and answer the following questions:
Check all that apply.

4) Describe any pollution prevention opportunities to eliminate, reduce, reuse or recycle each waste, emission or toxic substance. (What method(s) do you plan to use to achieve your goal?)

A pollution prevention opportunity is a way that you have thought of to prevent pollution. Your review should have given you insight into how processes or employees are actually using materials and generating wastes and releases. Now you must be creative and look for ways to reduce chemical use, waste generation and releases in the areas you investigated. What you list here need only be potential opportunities, they do not all need to be implemented and in fact it may be best to list any idea that is considered. After listing these potential opportunities you must determine if they will work for your facility.

- Will it work technically? You may need to try it on a small scale first.
- Will it save your company money in a reasonable amount of time?
- Do you have the budget to get this done?
- Will it really help reduce toxicity, reduce potential employee health problems, reduce airborne releases, etc.?

Some successful ways to develop pollution prevention opportunities are:

- Consult with workers and get their ideas.
- Use the environmental management hierarchy and try actions that will move you up the pyramid (Refer to Page 41 in the Appendix of this manual).
- Consult with chemical suppliers to see if they have substitutes.
- Talk to other businesses to find out if they have already found a better way.
- Use the internet to look for ideas or communicate with vendors.
- Consult vendors who may have developed new processes.
- Review the table of Pollution Prevention Techniques given on pages 43-45.
- Review Pollution Prevention Plans submitted by similar businesses.
- Do research at local libraries, universities or government clearinghouses.
- Ask the federal, state or local government for pollution prevention assistance.

At the bottom of the page list any of the opportunities that are not feasible at this time and explain why.

SECTION 7: POLLUTION PREVENTION PLAN GOALS - EXAMPLE

Facility Name: ABC Inc.
FAU Id #: 200999

Complete one form for each goal

1. Goal Statement: Enter a statement of the expected result. The statement should address what can be accomplished by implementing one of the opportunities from Section 6. Goal statements should be in the form (Action Verb) + (Target chemical or waste stream) used for/in (Process). Use action verbs such as "Reduce" or "Eliminate". For example: "Reduce methylene chloride used for degreasing by 80%." If a goal cannot be measured or will take a long period of time to complete then include an action plan that outlines measurable milestones. See Page 9 for an example of an action plan.	2. Scheduled Completion Date (Month/Year)	3. Completion Status: OS=On Schedule DR=Dropped D = Delayed C=Completed	4. Name of Toxic Substance; or Wastestream; Include CAS #; and/or RCRA Waste Code #	5. State Volatile Organic Chemical "VOC", Ozone Depleting Chemical "ODC", "Both" or "N/A"
Goal (# 1): Reduce styrene emissions from oversprayed gel coat by 35%. Process Area(s) (# 1)	12/2000		Styrene 100-42-5	VOC

6. If You Answered "D" or "DR" In Box #3, Provide Explanation(s).Include New Estimated Completion Date(s) For Delayed Goals:_____

7. Reduction Opportunity: Describe how the goal in Box 1 will be attained. Use language from Section 6.	8. Baseline Quantity	9. Baseline Year	10. Measured Reduction Quantity	11. Month & Year Box #10 Was Measured	12 Reduction Quantity is Adjusted for Production	13. Production Ratio (Optional Unless Box #12 is Marked "Yes")
Train operators in the best available spraying techniques to reduce overspray.	2500 QTY. (Check one) Pounds Gallons KWH	1998	_____ QTY. (Check one) Pounds Gallons KWH		Yes No	

INSTRUCTIONS FOR SECTION 7:
POLLUTION PREVENTION PLAN GOALS

(Copy and complete one goal form for each opportunity from Section 6 that is planned to be implemented)

1. Goal Statement
Enter the goal number. Each goal should have a unique number. Enter the number that you have assigned to the process area(s) that relate to this goal. Enter a statement of the expected result. The statement should address what can be accomplished by implementing one of the opportunities from Section 6. Goal statements should be in the form (Action Verb) + (Target chemical or waste stream) used for/in (Process). Use action verbs such as "Reduce" or "Eliminate." For example: "Reduce solvent used for degreasing by 80%." If a goal cannot be measured or will take a long period of time to complete then include an action plan that outlines measurable milestones. See Goal (#2) for an example action plan.

2. Scheduled Completion Date
List a realistic date (Month/Year) for this goal's completion. All goals must have a specific date even if the project will be ongoing. For example it could be the date that equipment is installed or the date recycling begins.

3. Completion Status
Leave blank. You will report this information on July 1st in a Progress Report. The report forms will be sent to you.

4. Name of Toxic Substance(s) or Waste stream(s)
List **only one** chemical, chemical mixture or hazardous waste. Include a CAS number or hazardous waste code. If the goal targets a group of chemicals and the baseline quantity is based on this chemical group, then put a group name, i.e., spent non-halogenated solvents. If the goal targets a chemical mixture each chemical may be listed separately if each has a separate baseline. Please be as specific as possible.

5. Volatile Organic Compound (VOC) or Ozone Depleting Chemical (ODC)
If the Toxic Substance or Waste stream is a Volatile Organic Compound (VOC) or Ozone Depleting Chemical (ODC), or both, please indicate this by writing "VOC", "ODC" or "VOC/ODC" as appropriate. If neither category applies, write "N/A."

6. If You Answered D or DR for Box #3, Provide an Explanation. Include New Estimated Completion Date(s) Leave blank. You may report this information on July 1st in a Progress Report. The Report forms will be sent to you.

7. Reduction Opportunity
Write out the opportunity from Section 6 that relates to this goal.

8. Baseline Quantity
Provide a 12-month baseline quantity so that the goal can be measured. Use either pounds, gallons or kilowatt hours (KWH). Give **only one** baseline per chemical or chemical group. You can obtain this information from a variety of reports such as the Facility Annual Report, Toxic Data Release Inventory, Tier Two Chemical Inventory, Purchasing records, etc.

POLLUTION PREVENTION TRAINING GOAL - EXAMPLE

Facility Name: *ABC Inc.*
FAU Id #: 200999

Complete this form and include in Section 7 if no training documents are being sent to ADEQ-FAU at

1. Goal Statement: Fill in dates and goal number in Box 1. Submit documents with the next Toxic Data Report.	2. Scheduled Completion Date (Month/Year)	3. Completion Status: OS=On Schedule D = Delayed C=Completed	4. Name of Toxic Substance; or Wastestream; Include CAS #; and/or RCRA Waste Code #	5. State Volatile Organic Chemical "VOC", Ozone Depleting Chemical "ODC", "Both" or "N/A"
Goal (# 2): Process Area(s) (# N/A) Develop a pollution prevention specific employee training program and send training documents to ADEQ-FAU. Action Plan: Research ADEQ-FAU sample training - 3/1999, Develop training documents - 8/1999, Perform trial run of training - 9/1999, Implement full scale training - 11/1999, Send training documents to ADEQ-FAU 12/1999	12/1999		Training	N/A

6. If You Answered "D" In Box #3, Provide Explanation(s).Include New Estimated Completion Date(s) For Delayed Goals:_____

7. Reduction Opportunity:	8. Baseline Quantity	9. Baseline Year	10. Measured Reduction Quantity	11. Month & Year box #10 was measured	12 Reduction Quantity is adjusted for production	13. Production Ratio (optional unless Box #12 is marked "Yes")
Training Program as discussed in Section 9	N/A QTY. (Check one) Pounds Gallons KWH	N/A	N/A QTY. (Check one) Pounds Gallons KWH	N/A	Yes No	N/A

NOTE: This goal is developed from Section 9, see Page 31 of this guidance manual.

CONTINUED - INSTRUCTIONS FOR SECTION 7: POLLUTION PREVENTION PLAN GOALS

9. Baseline Year

Provide the year the baseline quantity was measured for. Use the latest year that information is available.

10. Measured Reduction Quantity
Leave blank. You will report this information in a Progress Report when the goal is completed. The Report forms will be sent to you.

11. Month and Year Box #10 was Measured
Leave blank. You will report this information in a Progress Report when the goal is completed. The Report forms will be sent to you.

12. Reduction Quantity is Adjusted for Production
Leave blank. You will report this information in a Progress Report when the goal is completed. The Report forms will be sent to you.

13. Production Ratio (Optional Unless Box #12 is Marked "Yes")
Leave blank. You will report this information in a Progress Report when the goal is completed. The Report forms will be sent to you.

SECTION 8. MANAGEMENT PRACTICES AND PROCEDURES
Required: Describe provisions to incorporate pollution prevention into management practices and procedures in order to ensure its institutionalization. Use additional sheets as necessary.

Management has developed the following provisions to incorporate pollution prevention into established programs, policies and procedures in order to ensure its institutionalization:

(Check all that apply)

The Management Policy (Section 4) is posted on employee bulletin board

The Pollution Prevention Plan was distributed to each management employee for inclusion in their Supervisory Handbook or _____

Programs, procedures or policies were revised to incorporate Plan goals.

Management informs employees of procedural changes due to the Pollution Prevention Plan Goals through various methods including:

At mandatory monthly operation and safety meetings.

- ❒ Internal memos, directives and information circulars.
  Amendments to the operation's manual.
- ❒ Impromptu meetings held to discuss any immediate procedural, operational or equipment changes having to do with pollution prevention.
- ❒ Other _____

All production managers will be responsible for assuring Plan activities are incorporated into procedures (where applicable).

❒ Pollution prevention is included in employee and manager performance evaluations.

Employees are recognized or rewarded for suggesting successful pollution prevention opportunities.

❒ Accounting practices allocate the costs of waste management and regulatory compliance to the operations that use toxic chemicals or produce wastes.

❒ Pollution prevention considerations are included in procurement and inventory procedures to minimize unnecessary purchase and accumulation of toxic substances.

❒ Other:_____

EXAMPLE

INSTRUCTIONS FOR SECTION 8: MANAGEMENT PRACTICES AND PROCEDURES

Management has developed the following provisions to incorporate pollution prevention into established programs, policies, and procedures in order to ensure its institutionalization:

Check the box next to all statements that apply. The management policy from Section 4 must be posted so checking at least the first box and completing the first line is mandatory. Include any

additional practices or procedures used at the bottom of the page. Use additional pages as necessary.

The last five items are examples of practices used by facilities with highly successful pollution prevention programs.

All production managers will be responsible for assuring Plan activities are incorporated into procedures.

Making production managers responsible gives them an incentive to ensure the process changes that have been laid out stay in effect.

Pollution prevention is included in employee and manager performance evaluations.

This also gives people a stake in seeing that new pollution prevention processes are successful.

Employees are recognized or rewarded for suggesting successful pollution prevention opportunities.

Pollution prevention works best when ideas are solicited from everyone in the company. People that work with the processes, chemicals and wastes every day often have a different perspective on them than management. Rewards and recognitions help ensure that employees will continue to bring ideas to the pollution prevention team.

Accounting practices allocate the costs of waste management and regulatory compliance to the operations that use toxic chemicals or produce wastes.

This will allow the true cost of chemical use and waste production to be seen. This will make pollution prevention a production issue, thus shifting some of the responsibility of finding and implementing new opportunities to the production managers.

Pollution prevention considerations are included in procurement and inventory procedures to minimize unnecessary purchase and accumulation of toxic substances.

The best way to avoid costly disposal of chemicals is not to bring them onsite in the first place. Purchasing and inventory controls can assure that unwanted and expired chemicals do not become a disposal problem.

SECTION 9. EMPLOYEE AWARENESS AND TRAINING PROGRAMS

Required: Describe the employee awareness and training program to involve employees in pollution prevention planning and implementation to the maximum extent possible. The training program for this Plan must cover pollution prevention topics, not merely hazardous waste handling or OSHA requirements.

EXAMPLE

TRAINING DOCUMENTS *(check one of the following)*

Our facility's pollution prevention training documents are enclosed.

We will fill out the form found on the following page, place that form in Section 7 and implement that goal to develop pollution prevention training. When the goal is completed we will send our pollution prevention training documents to ADEQ-FAU.

TRAINING ASSISTANCE

Please send me a copy of ADEQ-FAU's sample pollution prevention training documents**.**

PURPOSE *(check at least the first box)*

The purpose of the pollution prevention employee training and awareness program is to teach employees about pollution prevention so that they can participate in identifying opportunities and can assist in achieving the Plan goals.

❒ Additional Purpose:_____

OBJECTIVES *(check at least the first box)*

The objectives of this program are to:

- Raise employee awareness of environmental related activities within the facility.
- Train employees in their pollution prevention responsibilities.
- Recognize employees for their pollution prevention efforts.
- Encourage employee participation.

❒ Additional Objectives:_____

SCOPE *(complete all questions)*

How frequently will training be held?	Once every 6 months
What types of employees will attend?	All, including managers
How will attendance be monitored?	Sign-in sheets

METHODS *(check at least one)*

The training methods will include:

Class room training sessions	❒ Video presentations	❒ Other:
❒ Newsletters	Posters	❒ Other:

TOPICS *(check at least the first box)*

The topics to be discussed include:

- Definitions related to pollution prevention
- Benefits of pollution prevention
- Waste Management Hierarchy - See Page 41 of this guidance manual
- Company Pollution Prevention Plan

❒ Additional Topics:_____

INSTRUCTIONS FOR SECTION 9: EMPLOYEE AWARENESS AND TRAINING PROGRAMS

Training Documents:
Check one of the boxes provided. If the first box is checked, submit the facilities pollution prevention training documents along with your plan. If the second box is checked there is no need to include training documents. If the third box is checked, complete the training goal form provided and include it in Section 7 of the Plan submittal. Completing this goal and submitting the resulting documents to ADEQ-FAU is a requirement if training documents are not provided at this time.

Training Assistance:
Check this box to receive sample training documents that can be used as a foundation to develop facility specific training.

Purpose:
Check at least the first box. Please write in any additional purpose for the training.

Objectives:
Check at least the first box. Please write in any additional objectives for this training.

Scope:
Write a brief response to all three questions detailing the logistics of the training.

Methods:
Check at least one box. Please write in any additional training methods that will be used.

Topics:
Check at least the first box. The training documents provided must include these topics. Please write in any additional topics that will be discussed.

SECTION 10. EXISTING POLLUTION PREVENTION ACTIVITIES

This is an opportunity for your facility to highlight any pollution prevention activities that have taken place prior to submittal of this Pollution Prevention Plan. **Please only include those activities completed prior to the starting date of this Plan.**

EXAMPLE

Check ONE box below.

❒ We have not documented any previous pollution prevention activities at our company.

OR

We have documented pollution prevention activities at our company and have enclosed information about these projects with this Plan. (Include as much specific information as possible and any available quantitative data.)

In 1995 this facility conducted a Green Lights electricity usage review. At that time all fluorescent light ballasts were replaced with electronic ballasts and more efficient light bulbs (Model T-8) have been used since. This has saved the facility about 30% on its electric bill.

INSTRUCTIONS FOR SECTION 10: EXISTING POLLUTION PREVENTION ACTIVITIES

Check one of the boxes provided. We strongly encourage you to provide as much detail about any past pollution prevention efforts. This will help us to assist you in discovering new pollution prevention opportunities in the future.

Part 3

Maintenance of a Plan

MAINTENANCE OF A PLAN

Pursuant to A.R.S. §49-963.G, a facility must maintain and implement the Plan until the facility ceases operation or no longer meets any one of the quantitative Plan threshold filing requirements (see the question and answers beginning on Page 58). Maintaining a Plan includes the implementation of the Plan to meet the Plan goals, tracking the status of the Plan goals, providing explanations if the goals are not met and amending the Plan as necessary to include new information and goals.

If the facility Plan time frame has ended prior to submittal of the yearly progress report and the facility still meets one of the Plan filing thresholds to maintain a Plan, an Amendment must be submitted by July 1. (The Plan time frame can be found in Section 5 of your approved Plan.) Failure to maintain the Plan constitutes noncompliance with A.R.S. §49-963 and will result in non-recertification of the Plan. This will cancel the 50% reduction of the hazardous waste fee per A.R.S. §49-931.A.4, and may lead to enforcement action.

YOU NEED TO FILE AN AMENDMENT TO YOUR EXISTING PLAN:

To extend the ending date of your current Plan time frame to keep the Plan active.
To add, delete or modify a portion of your existing Plan within the current Plan time frame.

INSTRUCTIONS FOR COMPLETING AN AMENDMENT

<u>An Amendment should include the following</u>:

Updates to each Plan section excluding Section 10 (Existing Pollution Prevention Activities).
Changes to the process areas described in Section 6 in which any one of the filing thresholds is still met.
Information about new opportunities and goals for chemicals and areas already covered.
Information about all toxic substances and hazardous waste which meet filing thresholds but were not covered in the original Plan or subsequent Amendments.
Descriptions of all areas not covered in your original Plan or subsequent Amendments which address the toxic substances or hazardous waste referred to above.
A copy of the facility's pollution prevention training program, if not previously submitted.

For Example: If you file a Toxic Release Inventory (TRI) form for chlorine and this toxic substance was not addressed in your original Plan then you need to complete Section 6 for this chemical. Complete Section 7 if feasible opportunities were developed in Section 6.

Note: When adding new goals, the goal number should be sequential with the original Plan goals. For example, if the last goal was goal # 5, then the first new goal should be goal #6.

Contact the ADEQ-FAU and request a "Pollution Prevention <u>Amendment</u> Guidance Manual" (yellow cover).

Part 4
Appendix

What is Pollution Prevention?

The term pollution prevention by itself seems simple; yet pollution prevention has many different interpretations. Federal, state and local pollution prevention programs often use different terms and meanings, such as source reduction, recycling, and toxic chemical reduction.

The federal Pollution Prevention Act of 1990 defines pollution prevention as a practice that:

> Reduces the amount of any hazardous substance, pollutant or contaminant entering any waste stream or otherwise released into the environment (including fugitive air emissions) prior to recycling, treatment or disposal; and
>
> Reduces the hazards to the public and environment associated with the release of such substances, pollutants or contaminants.

Pollution prevention in Arizona can include any of the following:

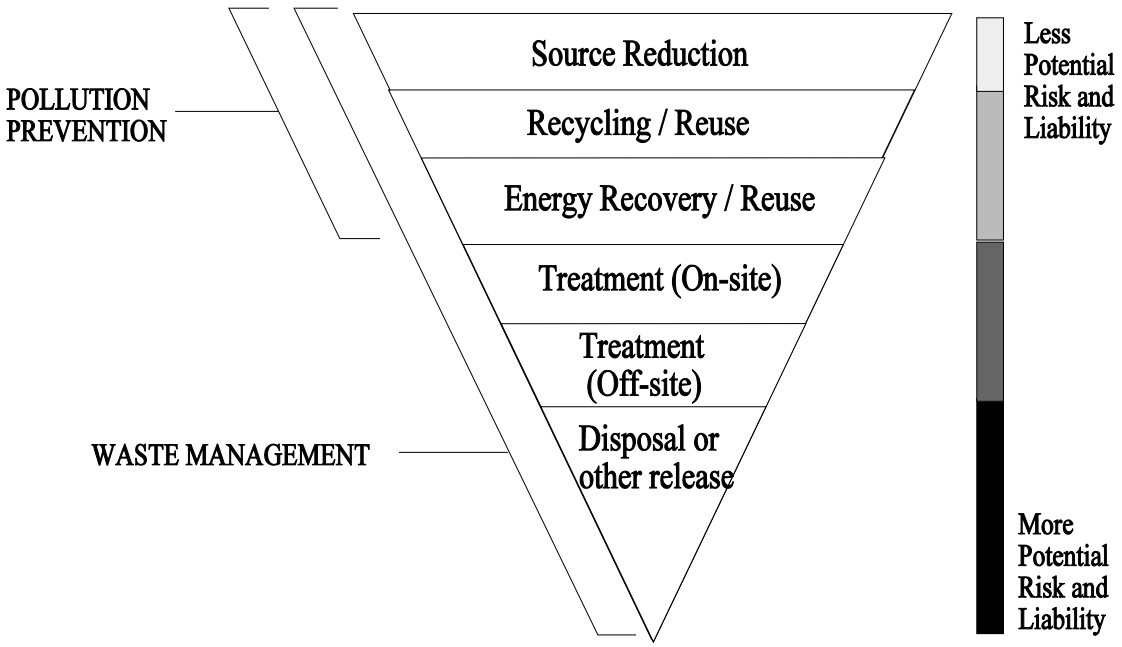
> Toxic use reduction, source reduction, recycling of wastes or secondary materials, waste minimization, reuse, reclamation, conservation, substitution, and volume reduction.

Pollution prevention applies to: All types of releases to land, water and air.

The concept of pollution prevention is: A prevention technique, not a control technique.

Pollution Prevention: Occurs upstream, before any releases or wastes.

The Pollution Prevention Act declared that some environmental management methods offer greater protection than others. We call this the "Environmental Management Hierarchy":



Source reduction is the best form of pollution prevention. Facilities should make a strong effort to aim their pollution prevention program efforts at source reduction. In general, source reduction includes any activity that reduces or eliminates the generation of hazardous waste or the release of a pollutant or contaminant at the source, usually within a process. Source reduction can include input material changes which involve:

Source Reduction Through Input Material Changes

Material Substitution :	Use a less hazardous material
Material Conservation:	Use less of a material
Material Elimination:	Do not use a material if it is not necessary

Source reduction can also be accomplished through source control, including technology changes and good operating practices.

Source Reduction Through Source Control

Technology Changes	Good Operating Practices
Process changes	Procedural changes
Equipment, piping, or layout changes	Spill and leak prevention
Automation	Waste stream segregation
Operating setting changes	Material handling improvements
	Production scheduling
	Inventory control

Pollution prevention includes a wide array of opportunities. Focus first on source reduction and then go through the environmental management hierarchy to identify additional pollution prevention opportunities. There are many different types of activities you can undertake. Practices such as reuse, recycling, energy recovery, and volume reduction are important techniques but they are not as beneficial as source reduction.

The following three pages also list some additional pollution prevention practices/techniques that can assist in identifying projects for your facility.

POLLUTION PREVENTION TECHNIQUES

METHOD	AREAS	TECHNIQUES
Source Reduction	Good Operating Practices	- Improve maintenance scheduling, record keeping, or procedures - Change production schedule to minimize equipment and feedstock changeovers - Other changes in operating practices
	Inventory Control	- Institute procedures to ensure that materials do not stay in inventory beyond shelf life. - Began to test outdated material, continue to use it if still effective - Eliminate shelf-life requirements for stable materials - Institute better labeling procedures - Institute a clearinghouse to exchange materials that would otherwise be discarded - Other changes in inventory control
	Spill & Leak Prevention	- Improve storage or stacking procedures - Improve procedures for loading, unloading, and transfer operations - Install overflow alarms or automatic shutoff valves. - Install vapor recovery systems - Implement an inspection or monitoring program of potential spill or leak sources - Other spill and leak prevention
	Surface Preparation & Cleaning	- Modify spray systems or equipment - Substitute coating materials used - Improve application techniques - Change from spray to other system - Other surface preparation and finishing modifications
	Product Modifications	- Change product specifications - Modify design or composition of product - Modify packaging - Other product modifications
	Raw Material Modification	- Increase purity of raw materials - Substitute raw materials - Other raw material modifications
	Process Modification	- Institute recirculation within a process - Modify equipment, layout, or piping. - Use of a different process catalyst - Institute better controls on bulk containers to minimize discarding empty containers. - Change from small containers to bulk containers to minimize discarding of containers. - Other process modifications
	Cleaning & Degreasing	- Modify stripping/cleaning equipment - Change to mechanical stripping/cleaning devices(from solvents to other materials) - Change to aqueous cleaners (from solvents or other materials) - Modify containment procedures for cleaning units - Improve draining procedures - Redesign part racks to reduce drag out - Modify or installed rinse systems - Improve rinse equipment design - Improve rinse equipment operation - Other cleaning and degreasing modifications - Reformulation
Energy Conservation	Energy Conservation	- Use more efficient motors, lighting, refrigeration - Adjusting burners for optimal air/fuel ratio - Improve thermodynamic efficiency of the process - Insulate heating or cooling lines

OTHER ENVIRONMENTAL MANAGEMENT TECHNIQUES

METHOD	AREAS	TECHNIQUES
Recycling	On-site Recycling	- Solvents/organics recovery - batch still distillation - Solvents/organics recovery-thin film evaporation - Solvents/organics recovery-fractionation - Solvents/organics recovery-solvent extraction - Solvents/organics recovery-other - Metals recovery-electrolytic - Metals recovery-ion exchange - Metals recovery-acid leaching - Metals recovery-reverse osmosis - Metals recovery-solvent extraction - Metals recovery-high temperature - Metals recovery-retorting - Metals recovery-secondary smelting - Metals recovery-other - Acid regeneration - Other reuse or recovery
	Off-site Recycling	- Same as on-site recycling - Paper recycling, cardboard, plastic, wood
Treatment	Waste Treatment (Air Emissions)	- Flare - Condenser - Scrubber - Absorber - Electrostatic precipitator - Mechanical separation - Other air emissions treatment
	Biological Treatment	- Biological treatment-aerobic - Biological treatment-anaerobic - Biological treatment-facultative - Biological treatment-other
	Chemical Treatment	- Chemical precipitation-lime or sodium hydroxide - Chemical precipitation-sulfide - Chemical precipitation-other - Neutralization - Chromium reduction - Complexed metals treatment (other than pH adjustment) - Cyanide oxidation-alkaline chlorination - Cyanide oxidation-electrochemical - Cyanide oxidation-other - General oxidation (including disinfection)-chlorination - General oxidation (including disinfection)-ozonation - General oxidation (including disinfection)-other - Other chemical treatment
	Incineration/ Thermal Treatment	- Liquid injection - Rotary kiln with liquid injection unit - Other rotary kiln - Two stage - Fixed hearth - Multiple hearth - Fluidized bed - Infrared - Fume/vapor - Pyrolytic destructor - Wet air oxidation - Thermal drying/dewatering - Other incineration/thermal treatment

OTHER ENVIRONMENTAL MANAGEMENT TECHNIQUES (Continued)

METHOD	AREAS	TECHNIQUES
Treatment	Solidification /Stabilization	- Cement processes (including silicates) - Other possolonic processes (including silicates) - Asphaltic processes - Thermoplastic techniques - Other solidification processes
	Physical Treatment	- Equalization - Other blending - Settling/clarification - Filtration - Sludge dewatering (non-thermal) - Air flotation - Oil skimming - Emulsion breaking-thermal - Emulsion breaking-chemical - Emulsion breaking-other - Other liquid phase separation - Adsorption-carbon - Adsorption-ion exchange (other than for recovery/reuse) - Adsorption-resin - Adsorption-other - Reverse osmosis (other than for recovery/reuse) - Stripping-air - Stripping-stream - Stripping-other - Acid leaching (other than for recovery/reuse) - Solvent extraction (other than recovery/reuse) - Other physical treatment
	Evaporation	
Energy Recovery	On-site Energy Recovery	- Industrial kiln - Industrial furnace - Industrial boiler - Other energy recovery methods - Transfer to waste broker
	Off-site Energy Recovery	Same as on-site energy recovery

Can Pollution Prevention Benefit My Company?

Most definitely! There are many reasons to reduce both the amount of waste generated and the amount of toxic chemicals released to the environment. For example, there are:

Economic Incentives
Regulatory Incentives
Liability Incentives
Public Relations Benefits
Human Health and Environmental Benefits

You can save money on disposal costs, raw material costs, and labor costs. You will find reduced liability, and reduced compliance costs. It can improve your relationship with the public - your neighbors and customers. It will help to protect our health and the environment we must all live in. It is not only environmentally a good choice, but can give your company an economic advantage over other companies. When you protect the environment, you are ultimately protecting yourself, your children and your grandchildren.

What is a Pollution Prevention Plan?

The pollution prevention regulations established in Arizona empower facilities to use knowledge of their own processes and procedures to reduce the use of toxic substances at the source, minimize the generation of hazardous waste, and prevent the release of pollutants to the environment.

A Pollution Prevention Plan (Plan) is a stand alone management document that provides information on the facility operations that directly or indirectly produce waste or use toxic substances. The written Plan will record the current work practices, outline potential pollution prevention opportunities and provide specific performance goals including a schedule for implementing these pollution prevention activities. The Plan should also describe performance measures to allow future evaluation of pollution prevention activities after implementation.

The Plan will document that the facility has performed a rigorous pollution prevention assessment. In addition to describing current practices and planned pollution prevention activities, the Plan can include information on past lution prevention activities that have already been completed at the facility.

Who Needs to do a Pollution Prevention Plan?

There are several different thresholds that, once exceeded, could require you to file a Pollution

Prevention Plan. If you check "YES" to any of the following, you will need to complete a Pollution Prevention Plan by December 31 of the year after you meet the thresholds. You can also submit a voluntary Plan even if you do not meet the thresholds to file.

YES	NO	REQUIREMENTS	NOTES
		The facility in a calendar year has: 10 or more FTE employees **and** is in any of the following SIC codes: any code from 2000-3900, 1021, 1031, 1041, 1044, 1061, 1099, 1221, 1222, 1231, 4911, 4931, 4939, (limited to facilities that combust coal and/ or oil for the purpose of generating electricity for distribution in commerce), 4953, (limited to facilities regulated under RCRA Subtitle C, 42 U.S.C. section 6921 *et seq*.) 5169, 5171, 7389, (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis) or is a federal facility, **and** manufactured, processed, or otherwise used a toxic substance in excess of the threshold quantity set under EPCRA Section 313. ***Note: The EPA lowered activity thresholds for newly added and existing persistent, bioaccumulative and toxic (PBT) TRI chemicals effective for the 2000 calendar year and reportable July 1, 2001.***	These facilities need to complete a TRI form (EPCRA section 313) and send to the ADEQ-FAU and the EPA. Call the EPCRA Hotline at 1-800-424-9346 or the ADEQ-FAU at 602-771-4235 for more details. Visit the TRI website at www.epa.gov/tri. These TRI forms must also be sent to the Arizona Emergency Response Commission. Call them at 602-231-6346 for details.
		The facility shipped off-site, for purposes other than recycling, **12,000 kilograms** or more cumulative total of **hazardous waste** in a calendar year, **or**	"Hazardous waste" is defined in A.R.S. §49-921.5 Recycling does not include burning for energy recovery.
		The facility shipped off-site, for purposes other than recycling, an average of **12 kilograms** or more per month cumulative total of **acutely hazardous waste** in a calendar year.	"Acutely hazardous wastes" are listed beginning in 40 CFR Part 261.33. Recycling does not include burning for energy recovery
		The facility generated **12 kilograms** of acutely hazardous waste or **12,000 kilograms** of hazardous waste cumulative total in a calendar year, exclusive of an episodic, accidental or remediation related release; **and** manufactured, processed, or otherwise used a toxic substance in excess of the threshold quantity set under EPCRA Section 313.	"Hazardous waste" is defined in A.R.S. §49-921.5 These facilities also need to complete and submit a TRI Form (EPCRA Section 313) only to the ADEQ-FAU. Call 602-771-4235 for more information.
		The facility **used** more than 10,000 pounds of a single toxic substance in a calendar year.	Arizona Toxic Substances (equivalent to EPCRA Section 313 chemicals) are listed under EPCRA Section 313.

Are There Any Exemptions to Doing a Plan?

The statute lists several exemptions to planning requirements. If you check "YES" to any of the following, you are not required to complete a Pollution Prevention Plan, even if you checked "YES" on the previous page. You may voluntarily submit a Pollution Prevention Plan. This sheet

is for your information only and does not need to be sent to ADEQ.

YES	NO	EXEMPTIONS
“	“	The facility is located on tribal land.
“	“	The facility is a household hazardous waste collection facility.
“	“	The facility is primarily engaged in receiving waste from off-site and has a permit issued or plan approved under A.R.S. §49 for the storage treatment or disposal of solid, special, or hazardous waste.
“	“	All of the toxic substances are used or produced in connection with a mining or metallurgical operation.
“	“	The facility is required to file solely due to the storage, supply, application or use of a pesticide as defined in A.R.S. §3-361 for agricultural application and we are subject to the pesticide reporting or record keeping requirements pursuant to A.R.S. §49-305 or rules adopted pursuant to A.R.S. §3-363.
“	“	The facility’s industry has been issued an agricultural general permit pursuant to A.R.S. §49-247.
“	“	The facility caused a one-time, unexpected, event that generates or requires the shipment of a hazardous waste or an acutely hazardous waste from an unused hazardous substance and; 1. The unused hazardous substance cannot be lawfully used due to changes in statute, or rule and; 2. A toxic data report has been filed for the event as prescribed in A.R.S. §49-962 and; 3. The toxic data report is required solely as a result of the one-time generation event.

Where Can I find Information For My Plan?

(From U.S. EPA “Facility Pollution Prevention Guide” Page 20, Box 8)

Regulatory Information:

- Waste shipment manifests
- Emission inventories
- Biennial hazardous waste reports

- Waste, wastewater, and air emissions analyses, including intermediate streams
- Environmental audit reports
- Permits and/or permit applications
- SARA Title III reports

Raw Material/ Production Information
- Production composition and batch sheets
- Material application diagrams
- Material safety data sheets
- Product and raw material inventory records
- Operator data logs
- Operating procedures
- Production schedules

Process Information:
- Process flow diagrams
- Design and actual material and heat balances for production processes, and pollution control processes
- Operating manuals and process descriptions
- Equipment lists
- Equipment specifications and data sheets
- Piping and instrument diagrams
- Plot and elevation plans
- Equipment layouts and logistics

Accounting Information:
- Waste handling, treatment, and disposal costs
- Water and sewer costs, including surcharges
- Costs for nonhazardous waste disposal, such as trash and scrap metal
- Product, energy, and raw material costs
- Operating and maintenance costs
- Cost accounting reports

Other Information:
- Environmental policy statement
- Standard procedures
- Organization charts

How Do I Find the Root Cause of a Waste or Emission?

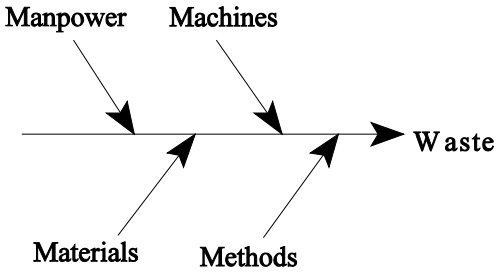
Cause and Effect Diagram

This diagram is also known as an Ishikawa diagram or a fishbone diagram. It is a tool to gather ideas about the factors (the causes) of a waste or about an opportunity for improvement (the effect). The cause and effect diagram is a brainstorming map that shows possible relationships among the factors. Like regular brainstorming this is best done with a team but one is not required.

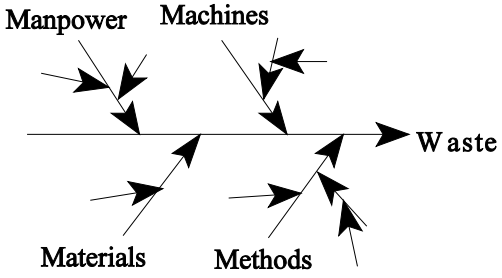
Steps:

1) Describe the effect, the waste, emission or toxic substance. Write it at the head of the fish.

2) Identify the cause groups. (the major types of factors contributing to the waste) Put each cause at the end of a rib. Common groups are the four "M"s: Manpower, Machines, Materials and Methods. These can be customized according to the situation.



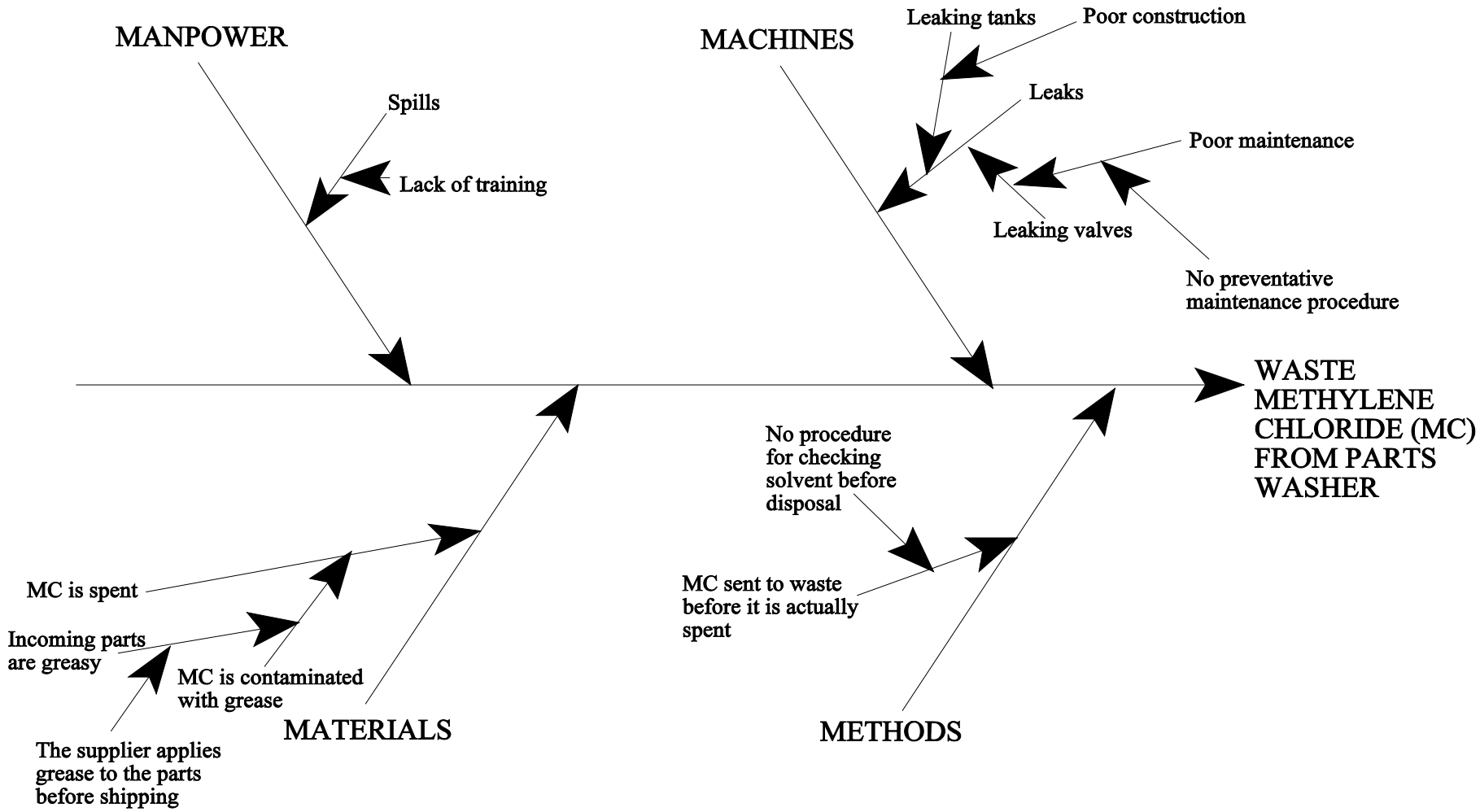
3) Conduct a brainstorming session to identify possible causes of the effect. Write each idea as an offshoot of the appropriate group rib. Continue to branch off of each cause rib until a final root cause is determined.



4) Once you have completed the fishbone diagram, rank the root causes in order of importance. Focus your opportunity development on those that rank the highest.

See the next page for an example about solvent based parts cleaning.

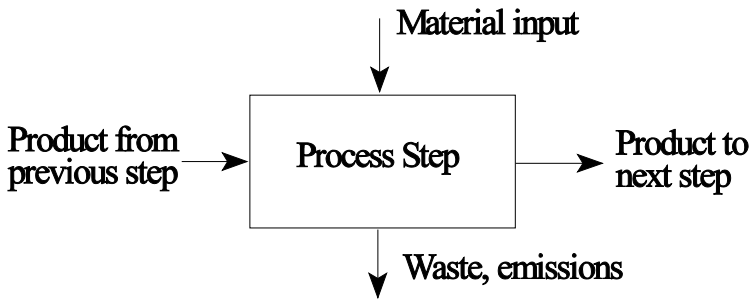
Example Fishbone Diagram for Solvent Degreasing



How Can I Track Materials In My Processes?

Use a process map. A process map is a graphical depiction of the functional sequence of steps in your process. The work steps on your map show how materials flow through your process to result in a product. A process map gives you a valuable tool to track material use and loss. It can also be used to track energy and water use.

Unlike flowcharts or equipment schematics which use a complex system of symbols, a process map uses simple boxes and arrows. Boxes denote work steps and arrows denote the movement of material and waste. Arrows pointing left and right represent the movement of product, arrows pointing down into a box represent material inputs to that step and arrows pointing down out of a box represent waste, emissions or pollution created by that step.



A process map actually consists of a collection of several maps of increasing detail. The first level map provides a broad overview of the process. It should include between 3 and 6 work steps representing the major parts of the process. The steps in the first level map are numbered sequentially 1, 2, 3, etc. To fully understand and explain your process you will need to create a second level map that explains the details of each of the work steps identified in the first level map. The second level map should contain between 3 and 6 steps for each first level step. A third and even more detailed levels may be required to fully describe your process. It is very important to have a numbering system that allows the detailed maps to be easily related back to the first map. For instance the steps in the second level map in the example are numbered 3.1, 3.2, and 3.3. The first digit of each step refers to step 3 of the top level map and the second digit refers to its place in the second level map.

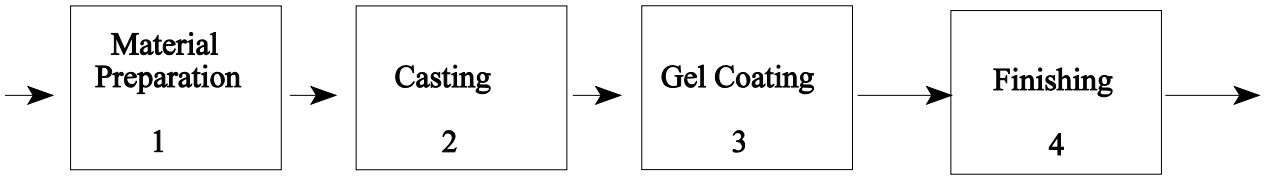
It may be useful to develop a facility wide map that shows how material flows from one process area to another. This facility wide map should show each process area as a work step box. The individual maps for each process area can act as the detail maps associated with the facility wide level one map.

The inputs and outputs of auxiliary processes, such as equipment cleaning and maintenance, can also be illustrated by using process maps. Do not overlook these processes as they often create the majority of a facility's waste.

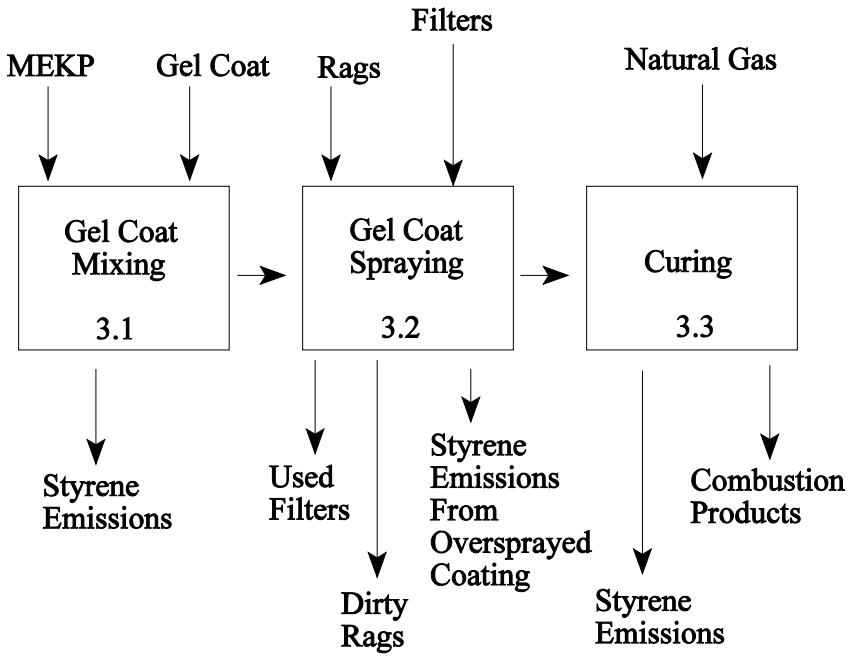
See the next page for a map developed from the example plan.

Process Map Example

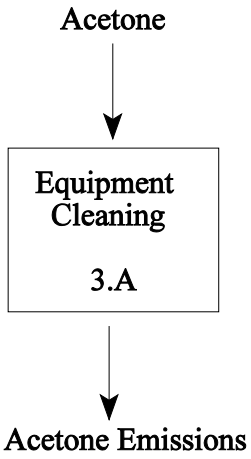
Overall Cultured Marble Process



Gel Coating Process Detail



Auxiliary Cleaning Process



How Do I Select Which Opportunities to Implement?

The Weighted Sum Method is a quantitative method for screening and ranking pollution prevention opportunities. This method allows you to rank pollution prevention opportunities based on the criteria important to your facility. This method involves three steps:

1. Determine what criteria are important for your facility's goals and constraints. For example, the following criteria could be used:

- Reduction in waste quantity
- Reduction in waste treatment or disposal costs
- Reduction in raw material cost
- Product quality not affected
- Low operating and maintenance costs

Assign a weight to each criteria. Use a scale from 0 to 10 to rate their importance (0 for low and 10 for high).

2. Each opportunity is rated for each criterion selected. Again a scale of 0 to 10 could be used.

3. Finally, the rating of each opportunity is multiplied by the ranking of each criterion. The opportunities' overall rating is the weighed sum of the products.

The opportunities with the best overall rating are then analyzed for technical and economic feasibility. The following example illustrates the Weighted Sum Method for screening and ranking opportunities:

ABC Corporation has determined that reduction in waste treatment costs is the most important criterion, with a weight factor of 10. Other significant criteria include reduction in safety hazards (weight of 8), reduction in liability (weight of 7), and ease of implementation (weight of 5). Options X, Y and Z are then each assigned effectiveness factors. For example, option X is expected to reduce waste by nearly 80%, and is given a rating of 8. It is given a rating of 6 for reducing safety hazards, 4 for reducing liability, and 2 for ease of implementation. The table below shows how the options are rated overall, with effectiveness factors also estimated for options Y and Z.

		Ratings for each option		
Rating Criteria	Weight	X	Y	Z
Reduce treatment costs	10	8	6	3
Reduce safety hazards	8	6	3	8
Reduce liability	7	4	4	5
Ease of implementation	5	2	2	8
Sum of weight times ratings		**166**	**122**	**169**

From this screening, option Z rates the highest with a score of 169. Option X's score is 166 and Y's score is 122. In this case, both option Z and X should be selected for further evaluation because their scores are high and the closest to each other.

How Do I Create a Successful Pollution Prevention Program?

Many companies understand the simple importance of pollution prevention and have moved away from a pure compliance philosophy. They have learned that public expectations are a better gauge to drive their environmental programs, not minimum compliance with regulations. Businesses are beginning to establish overriding environmental principles designed to govern company wide decision making and to ensure they are moving well beyond the minimum standards set by regulations.

Facilities have implemented a variety of pollution prevention programs in Arizona. Some programs are more successful than others. The following elements are considered important to the most successful pollution prevention programs.

- Management supports pollution prevention and commits the necessary resources to it.

    - Pollution prevention is integrated into business planning.
    - Environmental considerations are part of business planning processes.
    - Facility pollution prevention goals are part of the business planning process.
    - Pollution prevention is used, whenever possible, in anticipation of future compliance requirements.

- Facilities use a champion, facilitator or focal point person to lead the program.

- Cross functional teams are used. The purpose of forming a team is to be able to utilize the diverse skills of the team members in developing innovative pollution prevention activities. Important elements and activities of a team include:

    - Organization and Purpose: Support from all levels of management and a purpose.
    - Multi-disciplinary Members: Membership from various work areas, departments, and even vendors. The best ideas come from the production areas.
    - Regular Meetings: Have regular meetings to identify and prioritize pollution prevention opportunities. For your meetings, make agendas, document the meetings with action items and follow through on them.
    - Set Goals: Develop goals from the opportunities identified.
    - Review Projects and Drive to Completion: The team members review how a project is progressing and encourage its completion.
    - Document Results: Document waste reductions and other benefits.
    - Communicate: Share your results and successes with all employees to promote and gain support for pollution prevention.

- All employees are involved in the program.

    - Suggestions are solicited from all employees.
    - All employees are made aware of the facility's pollution prevention efforts.

Continued - How Do I Create a Successful Pollution Prevention Program?

- Recognition is used to sustain employee motivation.

    - Immediate recognition of early accomplishments helps establish the pollution prevention program.
    - Facility and/or corporate level recognition programs help sustain employee motivation.

- Pollution prevention progress is tracked and communicated.

    - Facilities have the ability to measure progress.
    - Facilities periodically publish results against goals.
    - Results are communicated to all employees.
    - Results are communicated to the community.

- Facilities use quality tools in their pollution prevention program (i.e. team based quality culture, ISO 9000/14000, use of Pareto principles, total quality management, etc.).

- Pollution prevention is integrated into pre-manufacturing decisions.

    - Pollution prevention begins at research, development and design phases of the product or process life.
    - Facilities work with equipment and raw material suppliers and customers to help identify pollution prevention opportunities for products and processes.

Some Additional Process Review Questions

1. What are the process steps?
In every process there is a functional sequence of work steps. Describe the work steps for this process. Only describe the current process. Give as much detail as possible about why steps are performed, when they are performed, and how they are performed. The purpose of this is to allow you to get a complete understanding of what happens in your facility and why and how it happens. You should walk through the process area to ensure that all steps are included.

2. What waste and emissions are generated by the process? What causes these wastes?
Most of this information can be compiled from reports you probably already have, such as your facility's: TRI Forms, Facility Annual Report (FAR), Air and Water Permits, Hazardous Waste Manifests, spill reports and shipping documents. Some other information, such as losses due to fugitive emissions or leaks, may take more effort to find. A material balance or some other calculations may be required. To determine what causes the wastes and emissions, you may want to use the fishbone diagram tool which is described on Page 50.

3. What equipment is used in the process and what is it used for?
Old equipment may cost more then it is worth due to frequent breakdowns, poor product quality, risk of worker exposure. Sometimes replacing or reconfiguring equipment can have a significant benefit.

4. Are wastes or emissions generated during cleaning and maintenance of equipment used in this process?
Cleaning and maintaining process equipment can produce significant wastes and emissions. Do not forget to include these auxiliary processes in the review.

5. What toxic chemicals are used in the process?
Be sure to look at all chemicals involved with the process, i.e., solvents and wetting agents. Include those used for maintenance and cleaning activities.

6. Are there procedures in place to review new substances for hazards and regulatory obligations before purchase?
By reviewing new chemicals before purchase you can prevent the costs associated with handling hazardous materials and wastes while at the same time reducing liability, decreasing worker exposure and protecting the environment.

7. Do raw material purchases produce a large amount of packaging material that must be handled, i.e. Pallets, drums, bags, etc.? If so what happens to this material?
Packaging waste while not always hazardous can be a significant portion of a facility's waste stream. Waste can be reduced or eliminated by getting your suppliers to use less packaging, ship in bulk or even take the packaging back for reuse. If this does not work look into recycling. Most packaging materials are recyclable.

8. How is hazardous waste handled at the facility? Are the wastes segregated?
How is each waste handled while at your facility? Could it be handled more efficiently with less environmental impact? Is the waste segregated? Segregation can significantly reduce a facility's hazardous waste.

Other Common Questions and Answers

Q **Where can I obtain more assistance in completing a Plan?**

A ADEQ-Facility Assistance Unit (FAU) staff is available to answer your questions over the phone or through a meeting at either ADEQ or your facility. The FAU has more than 280 Pollution Prevention Plans on file that you may review, especially those from similar industries. ADEQ-FAU also has a comprehensive pollution prevention library. Free pollution prevention training courses and on-site assessments are available. Please call 602-771-4529 (or in AZ, 1-800-234-5677) and ask for assistance in completing a Pollution Prevention Plan.

Q **When must the Plan be submitted?**

A The Pollution Prevention Plan is required to be submitted on or before December 31st of the year following the year in which you meet the filing threshold. For example, if in calendar year 1996 your facility "used 10,000 pounds of a toxic substance," a Plan would be due to ADEQ-FAU by December 31, 1997. All Sections of the Plan must be completed.

Q **Is there a standard Pollution Prevention form to use?**

A Yes. The ADEQ-FAU form is enclosed in the Plan Guidance document. The statutes specify the elements that must be included and the ADEQ-FAU form follows those requirements.

Q **How will the Plan be reviewed and then approved?**

A Your Plan will be reviewed and checked by two FAU staff within 90 days of receipt to ensure that it meets the statutory requirements. If your Plan is not complete, FAU will contact you by phone or with a letter that will outline the areas that need to be completed for acceptance. If your Plan is approved, ADEQ-FAU will issue a pollution prevention certificate. Important Note: You should begin implementing your Plan prior to ADEQ-FAU acceptance in accordance with your Plan implementation schedule.

Q **What type of reduction is required?**

A Facilities can establish their own specific goals based upon their knowledge of their processes and their efforts on pollution prevention. ADEQ-FAU expects facilities to challenge themselves in setting goals, and a facility will not be penalized for setting ambitious goals when a good faith effort is made to achieve them. The state has an overall goal of reducing hazardous waste by 25% between 1992 and 2000.

Q **How does an approved Pollution Prevention Plan affect my hazardous waste fee?**

A Any facility that has an approved Pollution Prevention Plan will be eligible for a 50%

reduction in their hazardous waste fee. Submit a copy of your approval certificate along with your fee invoice to receive the reduction. A progress report must be submitted and approved each year in order to continue to receive this reduction.

Q **What if I am writing one report for multiple sites?**

A If you have multiple sites, you are allowed under the pollution prevention regulations to develop an "umbrella" Plan. You must complete Part I of the ADEQ-FAU form for each facility or site covered by the Plan. The 50% hazardous waste reduction fee will be allowed for each of the facilities identified in the umbrella Plan when the Plan is approved.

Q **What will be done with all the information provided in the Plan?**

A The goals and technologies used to achieve reductions are compiled into a database and then summarized yearly into the document titled: "Goals, Methods and Target Chemicals." This document is available to the public and also all Plan filers to help facilities generate more pollution prevention activities.

Q **What is a Toxic Data Report?**

A The state pollution prevention statutes refer to a "Toxic Data Report" which is a collection of several documents. A Toxic Data Report is due each July 1st and includes:

1) An annual Progress Report showing goal status. (Further instructions will be sent to you for completing Progress Reports.)
2) A copy of the Toxic Chemical Release Inventory Report - EPA's Form R or Form A (If you met the threshold for EPCRA Section 313 filing requirements and are a hazardous waste generator you may need to file a State TRI form.) and;
3) A Plan Amendment (If your Plan expired or you need to update or add goals.)

Q **When are Progress Reports due?**

A The annual Progress Report is due on July 1st of each year to show your goal status. Progress Reports consist of an update of each goal in Section 7 until that goal is reported as complete. Further instructions will be sent to you for completing Progress Reports.

Q **How long do I need an active Pollution Prevention Plan?**

A The Plan must remain active until the facility does not meet the toxic use threshold, no longer meets the hazardous waste shipment thresholds for two consecutive years, ceases to

file a TRI Form or ceases operation.

Q When and how do I amend my Plan to keep it active?

A A Plan remains active if the Plan timeframe has not expired, goals are still being implemented and initial reduction measurements are in progress. Once the Plan timeframe has expired and your facility still meets filing thresholds, then a new Plan or an Amendment must be submitted by no later than July 1st of the following year. For example, if your Plan expires on December 31, 1996, then you must submit an Amendment by July 1, 1997.

Q When does a facility become inactive in the Facility Assistance Program?

A A facility can be removed from the Facility Assistance Program if the facility ceases operation, or if the facility has determined that all of the following statements are true:

A. Toxic Chemical Release Inventory Form: The facility was not required to file a Toxic Release Inventory Form (TRI) for the previous year on July 1.

B. Hazardous Waste Generation: The facility 1) did not generate an average of one kilogram per month of acutely hazardous waste (40 CFR, Part 261) or an average of 1,000 kilograms per month of hazardous waste in a calendar year, **for the past two consecutive years**, exclusive of an episodic, accidental or remediation related release or occurrence, **and,** 2) did not manufacture or process more than 25,000 pounds of a toxic substance or otherwise use more than 10,000 pounds of a toxic substance in the previous calender year.

C. Toxic Substance Use: The facility did not use in excess of 10,000 pounds of a toxic substance during the previous calendar year.

D. Hazardous Waste Shipped Off-site: The facility did not ship offsite for purposes other than recycling 12,000 or more kilograms cumulative total of hazardous waste or an average of one kilogram per month of acutely hazardous waste during the previous calendar year.

Q What does a facility need to submit to become inactive in ADEQ's Facility Assistance Program?

A A facility should request in writing to be removed from the program because it no longer meets the filing thresholds or it has ceased operations. The letter should include the reason and the date the thresholds were no longer being met. If the facility ceased operations, the letter should contain the date the facility stopped operating.

Q What does the term "use" mean?

A The definition of the term "use" in relation to the Form R, Toxic Chemical Release Inventory Report, is clearly defined by EPA in their reporting instructions. However, the Arizona statutes do not explicitly define the term "use" in the context of the threshold that

requires a facility “that uses 10,000 pounds of a toxic substance” to file a Pollution Prevention Plan.

For the purposes of this definition only, “use” is considered to be “any activity where a toxic substance is consumed, spent or disposed or is potentially or actually released to the environment.” Several exemptions have been recognized including for example: use as a structural component of a facility, such as structural metal beams containing toxic metals, chrome fixtures or copper plumbing; use in routine janitorial or facility grounds maintenance; personal use by employees or other persons, use of toxic chemicals contained in intake air or intake water; storage, warehousing, repackaging, distribution or sale of a toxic chemical, such as gas stations or chemical sales, except for portions released or disposed; production, processing or purchase of toxic chemicals specifically for sale or distribution outside the manufacturing facility; use of a closed item containing toxic chemicals (such as a transformer containing PCBs, chiller containing ammonia, or a battery containing lead) that does not release the toxic chemical during normal use. However , the subsequent replacement chemicals added to the item must be counted in the “use” threshold calculations; and use of toxic substances contained in fuels for vehicles or aircraft, such as gasoline or aviation fuel, except for portions released or disposed.

Q **What is a Toxic Substance?**

A The “toxic substances” in the Facility Assistance Program (as defined in ARS 49-961) are the chemicals found in the Emergency Planning and Community Right-to-Know Act (EPCRA), Section 313 (Form R Chemicals). A list of these chemicals can be made available upon request by calling ADEQ at 602-207-4235 or the EPCRA Hotline at 1-800-535-0202. Chemicals can be added and delisted each year by the U.S. Environmental Protection Agency.

Q **Will the Plan be kept confidential?**

A No. The Department shall make all Plans, Progress Reports, associated documents and correspondence available to the public. Do not include any confidential information with a Plan, Amendment, or Progress Report.

ARIZONA POLLUTION PREVENTION LAWS

ARTICLE 4. POLLUTION PREVENTION

49-961. Definitions

In this article, unless the context otherwise requires:

1. "Disposal" means discharging, depositing, injecting, dumping, spilling, leaking or placing a toxic substance or hazardous waste into or on land or water so that the toxic substance or hazardous waste may enter the environment, be emitted into the air or released into or commingled with any waters, including groundwater.

2. "Facility" means all buildings, equipment, structures and other stationary items located on a single site or on contiguous or adjacent sites and owned or operated by the same person or by any person who controls, is controlled by or is under common control with any person. Facility does not include a household hazardous waste collection facility or a facility that is primarily engaged in receiving waste from off site and that has a permit issued or plan approved under this title for the storage, treatment, or disposal of solid, special or hazardous waste.

3. "Generator" means a person who, by virtue of ownership, management or control, is responsible for causing or allowing to be caused the creation of hazardous waste.

4. "Hazardous waste" means hazardous waste as defined in section 49-921.

5. "Person" means an individual, the United States, this state or a public or private corporation, local government unit, public agency, partnership, association, firm, trust or estate or any other legal entity.

6. "Pollution " means the disposal of a toxic substance or hazardous waste into the air, land, surface water or groundwater.

7. "Pollution prevention" means operational procedures and processes and improvements in housekeeping or management techniques that reduce potential or actual releases of pollutants to the overall environment including all air, water and land resources affected by those pollutants. Pollution prevention includes any of the following:

(a) Toxics use reduction, source reduction, recycling of wastes or secondary materials, waste minimization, reuse, reclamation, conservation and substitution.

(b) Proportionate changes in the total volume, quantity or toxicity of a particular pollutant as prescribed in this subsection as the release of that pollutant changes as a result of production changes or other business changes. For the purposes of this subdivision, “business changes” includes improvements in operating practices, spill and leak prevention measures, inventory control and other changes that proportionally reduce or eliminate the release of pollutants to the overall environment but does not include the transfer or relocation of an operation or process to another facility in this state with no subsequent proportionate reduction in toxics use or the release of pollutants to the overall environment.

(C) On-site or off-site treatment if that treatment can be shown to confer a higher degree of protection to the public health and safety and the environment than other technically and economically practicable waste reduction alternatives.

8. “Recycling” means a reuse, further use, reclamation or extraction through a process or activity that is separate from the process or activity that produced the waste stream but does not include combustion or incineration.

9. "Toxic substances" or "toxics" means a toxic chemical listed pursuant to the pollution prevention act of 1990 (42 United States Code Section 13102(3)).

10. “Treatment” has the same meaning as prescribed in 40 code of Federal Regulations section 260.10 but does not include recycling.

49-962. Toxic data report; progress report;

exemption

A. A person who owns or operates a facility shall file a toxic data report on July 1 for the preceding calendar year if either of the following applies:

1. During the preceding calendar year, the owner or operator was required to file an annual toxic chemical release form for the facility pursuant to section 313 of the superfund amendments and reauthorization act of 1986 (P.L. 99-499).

2. During the preceding calendar year, the facility generated an average of one kilogram per month of acutely hazardous waste as defined in 40 code of federal regulations part 261 or an average of one thousand kilograms per month of hazardous waste in a calendar year, exclusive of an episodic, accidental or remediation related release or occurrence.

B. The owner or operator of a facility shall file the report prescribed in subsection A of this section on July 1 each year for the preceding calendar year until either the following applies:

1. The facility ceases operation.

2. The facility does not meet the requirements of both:

(a) Subsection A, paragraph 1 of this section.

(b) Subsection A, paragraph 2 of this section, for two consecutive years.

C. The toxic data report required in subsection A of this section shall include both of the following:

1. The report form required by the United States environmental protection agency pursuant to 42 United States Code section 13106.

2. Any annual progress report required to be submitted pursuant to section 49-963.

49-963. Pollution prevention plan; progress report; exemption

A. A person who owns or operates a facility that meets the reporting requirements prescribed by section 49-962 shall prepare and implement a pollution prevention plan that addresses a reduction in the use of toxic substances and the generation of hazardous wastes. By January 1, 1994, the director shall establish a numeric goal for the state for waste minimization. By January 1, 1999, the director shall establish a numeric goal for the state for toxic use reduction. For purposes of this section, "toxic substance" does not include material used or produced in connection with a mining or metallurgical operation.

B. By December 31, 1992, the following shall file a plan as described by this section:

1. A facility that shipped off-site for purposes other than recycling the lesser of:

(a) Twelve thousand or more kilograms cumulative total of hazardous waste in calendar year 1991.

(b) An average of one thousand kilograms or more per month cumulative total of hazardous waste in calendar year 1991.

2. A facility that shipped off site for purposes other than recycling an average of one kilogram or more per month cumulative total of acutely hazardous wastes, as defined in 40 code of federal regulations part 261 in calendar year 1991.

C. By December 31, 1995, a facility that shipped off site for purposes other than recycling from ten thousand kilograms to twelve thousand kilograms cumulative total of hazardous wastes in calendar year 1994 shall file a plan as prescribed by this section.

D. From and after December 31, 1994, a facility that uses in excess of ten thousand pounds in a calendar year of a toxic substance as defined in section 49-961 shall file a pollution prevention plan by December 31 of the following year covering those toxic substances that exceed the threshold quantity. From and after December 31, 1998, the director may adopt by rule threshold quantities of toxic substances different from those established pursuant to this section if the director determines there is sufficient evidence to establish any one of the following:

1. The chemical is known to cause or can reasonably be anticipated to cause significant acute adverse human health effects at concentration levels that are reasonably likely to exist beyond the boundaries of a facility site as a result of continuous or frequently recurring releases, or to cause or can reasonably be anticipated to cause a significant adverse effect on the environment of sufficient seriousness to

warrant inclusion in the pollution planning program because of any of the following:

(a) Its toxicity and persistence in the environment.

(b) Its toxicity and tendency to bioaccumulate in the environment.

2. The chemical is known to cause or can reasonably be anticipated to cause in humans either of the following:

(a) Cancer or teratogenic effects.

(b) Serious or irreversible reproductive dysfunctions, neurological disorders, heritable genetic mutation or other chronic health effects.

E. After December 31, 1992, a facility that meets the quantitative threshold filing requirements prescribed in subsection B of this section and that has not filed a plan with the department shall file a plan no later than December 31 of the following year.

F. Notwithstanding any other provision of law, a person required to file a toxic data report under section 49-962, subsection A, paragraph 1, shall prepare, submit and begin to implement a pollution prevention plan no later than December 31, 1992.

G. A facility required to prepare a pollution prevention plan under this section shall maintain and implement that plan until the facility ceases operation or the facility no longer meets the quantitative threshold filing requirements prescribed in this section.

H. A person who is not required to prepare a pollution prevention plan may voluntarily comply with this section and shall be deemed a generator who may certify compliance as prescribed in section 49-931, subsection A.

I. A person who owns or operates more than one facility that is required to prepare and implement a pollution prevention plan pursuant to subsection A of this section, may prepare and implement a single pollution prevention plan that covers more than one facility.

J. The pollution prevention plan required by this section shall include all of the following:

1. The name and location of and principal business activities at the facility.

2. The name, address and telephone number of the owner or operator of the facility and of the senior official with management responsibility at the facility.

3. A certification by the senior official with management responsibility at the facility that he has read the plan and that it is to the best of his knowledge true, accurate and complete.

4. Specific performance goals for the prevention of pollution, including an explanation of the rationale for each performance goal. The plan must include a goal for the facility and may include goals for individual production processes.

5. A written policy setting forth management and corporate support for the pollution prevention plan and a commitment to implement the plan to achieve the plan goals.

6. A statement of the plan's scope and objectives.

7. An analysis identifying pollution prevention opportunities to reduce or eliminate toxic substance releases and hazardous waste generation.

8. An analysis of pollution prevention activities already in place that are consistent with the requirement of this article.

9. Employee awareness and training programs to involve employees in pollution prevention planning and implementation to the maximum extent feasible.

10. Provisions to incorporate the plan into management practices and procedures in order to ensure its institutionalization.

11. A description of the options considered and an explanation of why the options considered were not implemented.

K. The pollution prevention plan, at a minimum, shall cover a two-year time period and may cover a longer time period at the discretion of the facility.

L. Each owner and operator required to prepare and maintain a pollution prevention plan under this section shall file an annual progress report. The annual progress report shall both:

1. Analyze the progress made, if any, in pollution prevention including toxics use reduction, source reduction and hazardous waste minimization relative to each performance goal established and relative to the plan contents prescribed in subsection J, paragraph 4 through

11 of this section. Pollution prevention achieved under previously implemented activities may also be included.

2. Set forth amendments to the pollution prevention plan and explain the need for the amendments.

M. A facility that causes a one-time event that generates a hazardous waste or an acutely hazardous waste from an unused hazardous substance is exempt from filing a pollution prevention plan and an annual progress report if all of the following conditions are met:

1. The unused hazardous substance cannot lawfully be used due to changes in statute, rule or regulation.

2. A toxic data report has been filed for the event as prescribed in section 49-962.

3. The toxic data report is required solely as a result of the one-time generation event.

N. This section does not apply to an episodic, accidental or remediation related release or occurrence.

O. A person who would be required to file a plan as prescribed by subsection A of this section solely due to the storage, supply, application or use of a pesticide as defined in section 3-361 for agricultural application and who is subject to reporting or record keeping requirements pursuant to section 49-305 or rules adopted pursuant to section 3-363 or a person who is issued an agricultural general permit pursuant to section 49-247 is exempt from the plan filing prescribed in subsection A of this section.

49-964. Review of reports and plans; enforcement; contempt

A. The department shall review the submissions required under this article, including the plan and any amendments and reports, to determine if the submission is complete and correct as prescribed in sections 49-962 and 49-963.

B. If a facility required to submit a plan or report under this article files an inadequate submission, the department shall notify the facility in writing of the inadequacy, identifying the specific deficiencies. In reviewing the adequacy of a plan or report, or any amendment to a plan or report, the department shall base its determination on whether the plan, report or amendment is complete and correct in accordance with the requirements of this article. If the submission is inadequate, the department shall specify a reasonable time of at least ninety days within which the facility shall file a modified submission addressing the specified deficiencies.

C. If, after the specified time, the facility has not filed a modified submission or the modified submission is otherwise inadequate, the department may enter a formal notice of inadequacy. The department shall place a copy or abstract of the notice of inadequacy in the department's annual report.

D. If a formal notice of inadequacy is entered, the department, pursuant to title 41, chapter 6, may hold a public hearing at least thirty days but not more than ninety days after providing written notice to the facility. The department may issue an administrative order requiring the facility to correct the deficiencies. If the facility fails to comply with an administrative order, the department may enforce that order in a judicial proceeding including an action for contempt.

E. In reviewing for adequacy an amendment or annual progress report, the department's review is restricted to the scope of the current submission. Previous amendments to the plan and annual progress reports that were found to be adequate are not subject to review.

F. If a facility required under this article to submit a plan or annual progress report fails to submit the plan or report, the department shall order that facility to submit an adequate plan or report within a reasonable time period of at least ninety days. If the facility fails to develop an adequate plan or progress report in response to that order within the time period specified in that order, the department may do any of the following:

1. Under procedures established by rule, provide for inspecting the facility, gathering necessary information and preparing a plan or progress report for the facility at the facility's expense.

2. Pursuant to title 41, chapter 6, enter an administrative order for compliance that is enforceable in a judicial proceeding including an action for contempt.

G. The attorney general, at the request of the director, may bring an action in superior court to recover the department's costs incurred under subsection F of this section. The facility owner or operator may appeal the department's determination to proceed under this subsection and subsection F pursuant to title 41, chapter 6 before the department prepares the plan or progress report. Any final agency order issued pursuant to this section is subject to judicial review pursuant to title 12, chapter 7, article 6.

H. Failure to implement the pollution prevention plan is a violation of this article and the attorney general, at the request of the director, may bring an action in superior court to compel implementation of the provisions of an approved plan, and the director pursuant to title 41, chapter 6 may enter an administrative order for compliance that is enforceable in a judicial proceeding including an action for contempt.

I. Reports and submissions made to the department pursuant to this article shall be deemed adequate for purposes of this article unless the department notifies the facility in writing of any deficiencies within ninety days of receipt of the submission.

49-965. Pollution prevention technical assistance program

A. The department shall establish a technical assistance program designed to assist all persons in reducing to the fullest extent possible the amount and toxicity of the hazardous waste that is generated or toxic substances used in this state. The assistance program may include:

1. The establishment of a hazardous waste reduction clearinghouse of all available information concerning hazardous waste reduction, toxic substances minimization, recycling programs, economic and energy savings, and production and environmental improvements.

2. The production of workshops, conferences and handbooks on the topics described in paragraph 1 of this subsection.

3. Cooperation with university programs to develop hazardous waste reduction and toxic substances minimization curricula and training.

4. Presentation of on-site technical assistance for hazardous waste generators and toxic substances users.

5. Researching and recommending incentive programs for innovative hazardous waste management and toxic substances reduction.

B. The technical assistance program shall be funded from monies allocated from the hazardous waste management fund as prescribed in section 49-927.

49-966. Annual report by department

On December 31, 1993 and each year thereafter, the department shall submit an annual report evaluating the pollution prevention program to the governor, the president of the senate and the speaker of the house of representatives. The department shall utilize information submitted to the department of agriculture pursuant to title 3, chapter 2, articles 5 and 6 and the division of emergency services pursuant to title 26, chapter 2, article 3. The annual report shall contain all of the following:

1. A description of the department's activities to encourage pollution prevention with particular attention to technical assistance efforts.

2. A compilation of the information received in the toxic data reports.

3. An estimate of the total number of facilities reporting and filing plans.

4. A synopsis of progress, summarized from the annual progress reports.

5. A list of facilities that have inadequate plans or reports, that have failed to make progress towards the goals established in their plans or that have made inadequate progress towards their goals.

6. A list of facilities that file an annual toxic chemical release form pursuant to section 313 of the superfund amendments and reauthorization act of 1986 (P.L. 99-499) and that are not required to file a hazardous waste generator

report under federal law, and recommendations regarding participation in the pollution prevention program for those facilities.

7. Specific recommendations for statutory and regulatory changes to the program to improve compliance, enforcement and progress toward the purposes of this article.

49-967. Availability of information to the public

A. Any records, reports or information obtained from any person under this article, including records, reports or information obtained or prepared by the director or a department employee, shall be available to the public, except that the information, or a particular part of the information, shall be considered confidential on either:

1. Notice from the person, accompanying the information, stating that the information, or a particular part of the information, if made public, would divulge the trade secrets of the person or other information likely to cause substantial harm to the person's competitive position.

2. A determination by the attorney general that disclosure of the information or a particular part of the information would be detrimental to an ongoing criminal investigation or to an ongoing or contemplated civil enforcement action under this chapter in superior court.

B. If the director, on his own or following a request for disclosure, disagrees with the confidentiality notice, he may request the attorney general to seek a court order authorizing disclosure. If a court order is sought, the person shall be served with a copy of the court filing and shall have twenty business days from the date of service to request a hearing on whether a court order should be issued. The hearing shall be conducted in camera, and any order resulting from the hearing is appealable as provided by law. The director may not disclose the confidential information until a court order authorizing disclosure has been obtained and becomes final. The court may award costs of litigation including reasonable attorney and expert witness fees to the prevailing party.

C. Notwithstanding subsection A, the following information obtained from any person under this article shall be available to the public:

1. The name and address of any permit applicant or permittee.

2. The types and amounts of any hazardous waste generated, stored, treated, or disposed.

3. The types and amounts of any toxic substances released to the environment.

D. Notwithstanding subsection A, the director may disclose, with accompanying confidentiality notice, any records, reports or information obtained from any person under this article, including records, reports or information obtained by the director or department employees, to:

1. Other state employees concerned with administering this chapter or if the records, reports or information are relevant to any administrative or judicial proceeding under this chapter.

2. Employees of the United States environmental protection agency if such information is necessary or required to administer and implement or comply with federal statutes or regulations.

49-968. Department Rules

A. The director shall adopt by rule any substance established by the administrator of the United States environmental protection agency pursuant to the pollution prevention act of 1990 (42 United States Code section 13102(3)). Except for public notice requirements this adoption is exempt from the requirements of title 41, chapter 6. The director shall give public notice pursuant
to title 41, chapter 6 of the adoption of substances under this section.

B. The director may, by rule, add or delete a substance to the list of toxic substances based on the same criteria described in the emergency planning and community right to know act (42 United States Code section 11023(d)).

49-969. Consumer product information

A. The department may not prepare or distribute public education information relating to any claims regarding household hazardous waste or substitutes for any household consumer product unless the information is competent and reliable and based on a test, analysis, research, study or other evidence that yields accurate and reliable results.

B. The department may publish or distribute the following without verification studies or analyses:

1. Information compiled pursuant to requirements set forth in state law.

2. Case studies of specific facilities or their processes.

3. Articles or views expressing the opinion of an author outside the department, provided that this material is prepared for discussion purposes only.

C. The department may not recommend any substance as a pesticide unless the substance is either of the following:

1. Registered for use as a pesticide by this state and by the United States environmental protection agency, or its successor, and is to be used in a manner consistent with the label directions.

2. Listed by the environmental protection agency in 40 Code of Federal Regulations section 152.25, exemptions for pesticides of a character not requiring regulation under the federal insecticide, fungicide and rodenticide act, as amended by the food quality and protection act of 1996.

ARTICLE 5. POLLUTION PREVENTION FOR STATE AGENCIES

49-972. Pollution prevention plan for state agencies; definition

A. A state agency that produces hazardous waste or uses toxic substances in excess of the threshold quantity prescribed in section 49-963 shall file a pollution prevention plan with the director. The pollution plan shall have a goal of twenty per cent reduction in hazardous waste within five years and a seventy per cent reduction in hazardous waste in ten years.

B. The pollution prevention plan shall address a reduction in the use of toxic substances and the generation of hazardous wastes. The plan shall be completed on a form published by the director and shall be filed with the director by July 1, 1993, and every 5 years thereafter.

C. A state agency required to file a pollution prevention plan may include in the report a certification that there is no reasonably available and technically feasible alternative to the current level of generation of hazardous waste at its facilities. If approved by the director, the certification shall serve as demonstration of compliance with the goals stated in subsection A of this section.

D. The state agency required to prepare a pollution prevention plan shall maintain a copy of the plan and annual summaries at the agency and at the facility, where they shall be available for inspection by the department and by the public.

E. The pollution prevention plan summary shall include a summary of all data and information in the plan including the following:

1. A statement of the scope and objectives of the pollution prevention plan considering toxicity, volume, disposal costs and liability costs, and a numerical statement of the reductions in facility-wide use of each hazardous waste at the facility over the next five or more years.

2. An analysis identifying pollution prevention opportunities to reduce or eliminate toxic substance releases and hazardous waste generation.

3. The name and location of all facilities associated with the state agency that are included in the plan and the name, address and telephone number of the operator and the senior official with management responsibility at the facility.

4. Identification and explanation of technology, procedures and options considered available and technically feasible for reducing the use of each hazardous waste and toxic substance at the facility, an explanation of options not implemented and a time schedule for implementing chosen options.

5. A written certification that the agency has prepared a pollution prevention plan and that a

copy of the plan is available at the agency or facility for the department's inspection and for inspection by the public on request to the department.

6. Specific performance goals for the prevention of pollution, including an explanation of the rationale for each performance goal. The plan shall include a goal for the facility and may include goals for individual processes, operations, toxic substance usage and hazardous waste.

7. A written certification by the senior official with management responsibility that he has read the plan and that to the best of his knowledge it is true and complete.

8. A written policy setting forth management support for the pollution prevention plan and a commitment to implement the plan to achieve the plan goals.

9. An analysis of the pollution prevention activities that are already in place and that are consistent with the requirements of this article.

10. Employee awareness and training programs to involve employees in pollution prevention planning and implementation to the maximum extent feasible.

11. Provisions to incorporate the plan into management practices and procedures to ensure the plan's institutionalization.

F. To the extent practicable, the information required for the preparation of a pollution prevention plan shall be based on information developed and forms completed by the state agency for the purposes of compliance with sections 26-347 and 26-351, the federal pollution prevention act, section 304(I) of the federal water pollution control act, pretreatment sludge permits pursuant to 40 Code of Federal Regulations part 503, or other required state and federal reports.

G. The department shall make all pollution prevention plans and pollution prevention plan summaries available to the public.

H. If the department determines that a plan is not in compliance with the requirements of this section, the department may allow the person submitting the plan ninety days from the date of the notice of the deficiency to correct the deficiency.

I. Each state agency required to prepare and maintain a pollution prevention plan shall file an annual progress report. The annual progress report shall both:

1. Analyze the progress made, if any, in pollution prevention including toxics use reduction, source reduction and hazardous waste minimization relative to each performance goal established and relative to plan contents.

2. Set forth amendments to the pollution prevention plan and explain the need for the amendments.

J. If the threshold quantity prescribed in section 49-963 is exceeded due to an accidental or remediation related release or occurrence, the requirement to file a plan pursuant to this section does not apply.

K. For purposes of this section. "state agency" includes all facilities controlled by an agency.

49-973. Toxic data report; progress report

A. A state agency shall file a toxic data report on July 1 if the agency during the preceding calendar year generated ten thousand pounds or more of hazardous waste. For purposes of this section, the hazardous waste generated shall consist of the aggregate amount of hazardous waste generated from all facilities directly controlled by the state agency.

B. The toxic data report required in subsection A of this section shall include the following:

1. An annual progress report as prescribed in section 49-972, subsection H.

2. Toxic chemical information in the format of a toxic chemical release form required by section 313 of the suoerfund reauthorization act of 1986 (P.L. 99-499) for each facility within the state agency that meets the threshold as prescribed by the department and that is not subject to exemptions.

3. The address of each off-site treatment storage or disposal facility to which each hazardous waste generated was transported and the type of treatment or disposal methods used for each hazardous waste at each off-site facility.

C. If the threshold quantity prescribed in subsection A of this section is exceeded due to an accidental or remediation related release or occurrence, the requirement to file a report does not apply.

ARTICLE 2. HAZARDOUS WASTE MANAGEMENT

49-931. Hazardous Waste Fees; definitions

A. Beginning January 1, 1992, the following fees apply:

1. Except as provided in paragraph 4 of this subsection, a person who generates hazardous waste that is shipped off site shallpay ten dollars for each ton of waste generated. Hazardous waste that is shipped off site to a facility that is in this state and thatis owned or operated by the same person who generates the waste is exempt from the fees in this paragraph.

2. Except as provided in paragraph 4 of this subsection, an owner or operator of a facility that disposes of hazardous waste shall pay forty dollars for each ton of waste disposed. Hazardous waste that is disposed at a facility that is owned or operated by the same person who generates the waste is exempt from the fee in this paragraph.

3. Except as provided in paragraph 4 of this subsection, a person who generates hazardous waste that is retained on site for disposal or that is shipped off site for disposal to a facility that is owned or operated by that generator shall pay four dollars for each ton of hazardous waste delivered to the disposal facility.

4. In lieu of the fees prescribed in paragraphs 1 and 3 of this subsection, a person who generates hazardous waste and who complies with the pollution prevention planning requirements of article 4 of this chapter shall pay one-half of the prescribed fee for each ton of hazardous waste. In lieu of the fees prescribed in paragraph 2 of this subsection, an owner or operator of a facility that receives hazardous waste from a person who complies with the pollution prevention planning requirements of article 4 of this chapter shall collect and pay one-half of the prescribed fee for each ton of hazardous waste received. These reduced fees apply only if the person submits written certification of that compliance. This certificate of compliance shall be submitted with the manifest that accompanies the hazardous waste transported off site for disposal and shall accompany the copy of the manifest that is filed by the generator with the department.

B. Each operator or person who is required to pay a fee as prescribed by this section shall make the fee payment as determined by the department.

C. The department shall collect all fees due under this section and shall transmit those fees to the state treasurer for deposit in the hazardous waste management fund established in section 49-927. Each fee payment shall be accompanied by a form furnished by the department and completed by the operator or person. The form shall state the total volume or weight of hazardous waste generated or disposed at that facility during the payment period and shall provide any other information deemed necessary by the department. The operator or person shall sign the form.

D. If an operator or person fails to pay the fee prescribed by this section, the operator or person is additionally liable for interest on the unpaid amount at the rate prescribed by section 44-1201.

E. State agencies including state universities, are not exempt from the fees prescribed by this section.

F. For purposes of this section:

1. "Generates" means the act or process of producing hazardous waste and includes importing hazardous waste into this state for disposal.

2. "Off site" means any transportation that is not on site as defined in section 49-851.

3. "Person" means an individual, trust, firm, joint stock company, corporation including a government corporation, partnership, association, state, municipality, commission, political subdivision of this state, interstate body or federal facility.

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